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THE JOHNS HOPKINS UNIVERSITY

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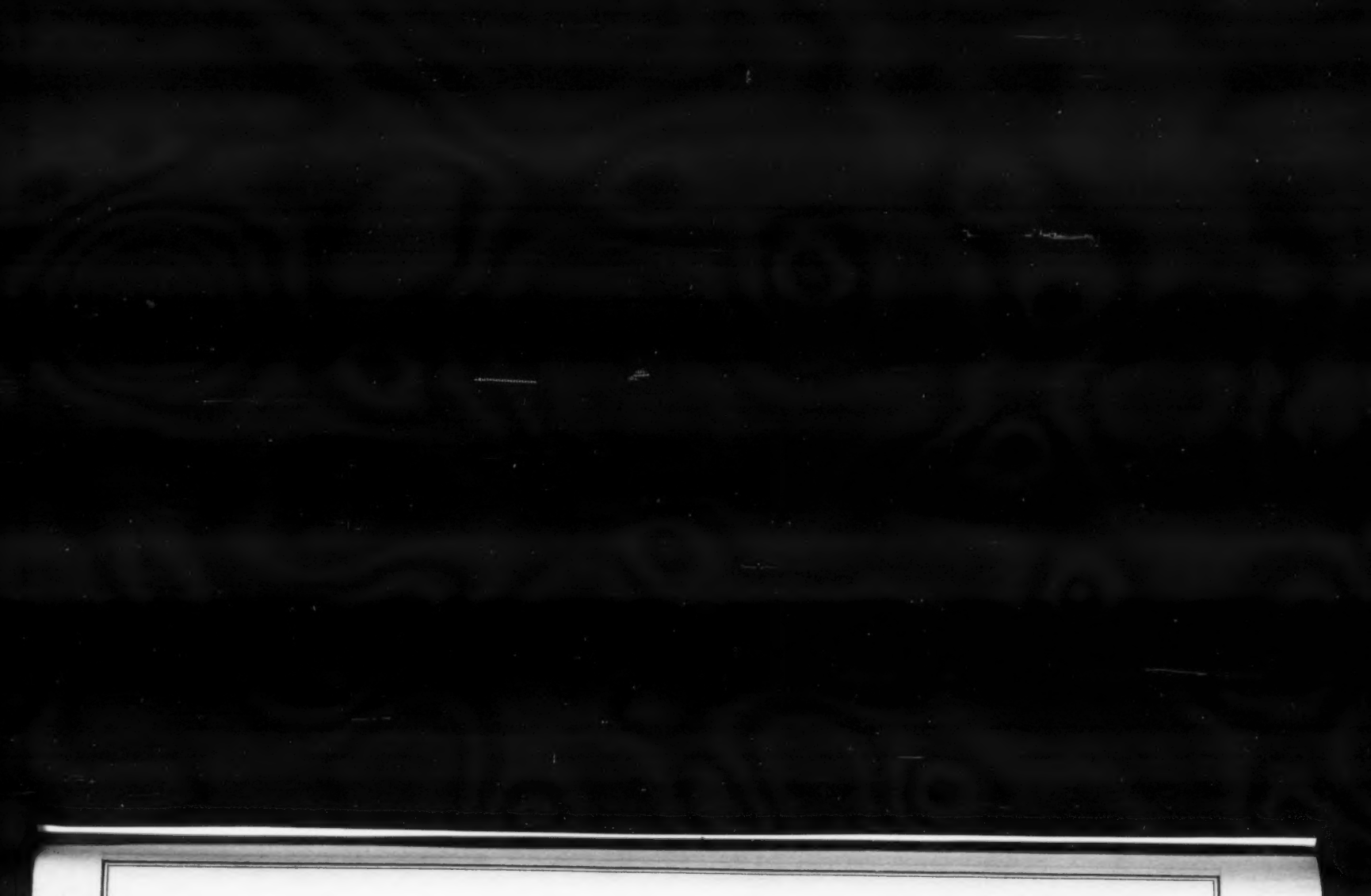

DESCRIPTION OF THE OSLER CLINIC. ITS ORGANIZATION

WARFIELD T. LONGCOPE

Several years ago it became obvious that, in order to afford proper facilities for the care of patients, as well as for clinical study and for the instruction of students, a new medical clinic would have to be constructed. This new medical clinic was planned as a complete unit containing wards, dispensary, laboratories for students, laboratories for routine work and for investigation, with rooms and small amphitheaters for teaching. One portion of the new medical clinic included the medical dispensaries, the various groups of laboratories and a part of the teaching rooms. This portion of the clinic was built some time ago and has now been in operation for several years. The recent and most important additions, which now complete the Medical Clinic, are the hospital wards for medical patients, or what is in reality a medical hospital of 150 beds. This medical hospital has been named after William Osler, the first Professor of Medicine, and is in the strict sense of the term "The Osler Clinic." More and more, however, "The Osler Clinic" is coming to stand for the entire medical clinic, including the medical hospital, the medical dispensary and the laboratories for the instruction of students and for clinical investigations; for, as the humanitarian and intellectual activities of these portions of the clinic are inseparable, so the physical relationships of the parts must be as close as possible in order that the whole may be welded into an efficient unit. It was with this idea in mind that the plans for the medical clinic were originally devised, and since, in a way, this represents simply a consummation of the original conception of Dr. Osler, it seems proper to speak of the entire clinic as "The Osler Clinic."

The floor plans of all parts of the Clinic, which are reproduced here, show very well the physical connections between the different divisions. It will be noted that the first floor of the hospital is arranged for the various forms of physical therapy. The second, third and fourth floors

of the hospital connect directly with the general and special units of the Medical Dispensary. The small amphitheater, a room for anthropological measurements and a dietitian's station are located on these same floors. The fifth floor of the hospital, which houses the "metabolism Ward" connects directly with some of the offices of members of the staff, and with the laboratories equipped for the routine work and clinical research by chemical and physiological methods. The sixth and seventh floors of the hospital connect directly, or by means of a short stairway, with the sixth floor of the dispensary building on which are located a few offices for members of the staff, the laboratories for routine work and clinical research by bacteriological and immunological methods, the laboratories for research in syphilis, the laboratories used for the instruction of students in clinical microscopy and the departmental library. The seventh floor of the hospital is used as an isolation ward for the care of communicable diseases. This floor also contains a small sittingroom and a few bedrooms for members of the resident staff.

The idea which formed the basis for the plans shown here was, of a medical hospital and dispensary for the care of patients and their treatment by the most modern methods; of arrangements for the training of both undergraduate and graduate students, and of ample facilities and equipment for the investigation of disease by any method that might, at one time or another, promise fruitful results. It was also recognized that the structure must be susceptible to alteration so that it could be adapted to new purposes and ideas as they may arise in the future.

The architect's drawings show the floor plans of the hospital which in their essential features are quite simple. The second, third, fourth and sixth floors are the same. The wards are provided with two single rooms, one room for two patients, two four-bed wards and one large sixteen-bed ward. Each bed may be screened by curtains hanging on fixed rods. The wards accommodate twenty-eight patients. The nurses' station overlooks the sixteen-bed ward and the two single rooms intended for the care of seriously ill patients. Each ward is provided with one tub for the continuous bath. At the end of each ward there is a sun porch. The nurses' preparation room, linen room and utility room are located conveniently for all patients. Opposite to them is a

small office for the ward physicians, and an examining room furnished with equipment for elaborate methods of examination, and special forms of therapy. Outside the ward proper are the accessories, so necessary for the modern conduct of a medical service. These consist of a small waiting-room for the friends of patients; of a room for the instruction of students in small groups; of laboratories for the house staff and students, arranged for carrying out the routine laboratory procedures for the ward patients, and of rooms for the more elaborate treatment, examinations or investigation of patients. Among these may be mentioned the room for the Drinker respirator, the room for fluoroscopy, rooms for the determination of the basal metabolism, a room for the determination of capillary and arteriolar pressures, etc., etc. The importance of the accessory rooms, arranged actually as a part of the ward unit, can scarcely be overemphasized. There is also on each floor a room for the supervisor in charge of the instruction of student nurses. These four wards consisting of 112 beds contain 28 beds each for male and female, white and colored patients.

The fifth floor is arranged differently. It accommodates 20 patients in single rooms and in rooms containing two beds. At the south end there are several rooms, with kitchen, charting-room and utility room, reserved exclusively for patients requiring careful metabolic studies. The rooms in the remainder of the ward are reserved for patients, whose condition requires accurate and controlled studies which cannot be carried out as effectively or as promptly in the general medical wards. Patients may be admitted directly to this ward or may be transferred, for varying lengths of time, to this ward from the general wards. The rooms in this part of the ward are available to any member of the visiting staff who desires to investigate, with especial care, some particular form of disease.

The seventh floor is planned for the care of 16 patients suffering from communicable disease. The methods of individual isolation are so strictly enforced that all forms of contagious disease may be treated. Patients with scarlet fever, measles, diphtheria, pertussis, erysipelas, etc., are accepted and may be isolated in separate rooms in this ward at the same time. Outside the ward proper there are two laboratories, one for bacteriology and one for clinical chemistry and microscopy.

The arrangement of the floors in the dispensary, each one of which connects directly with one or another of the wards of the hospital need not be described here. A detailed account may be found in Methods and Problems of Medical Education (Eleventh Series, New York. The Rockefeller Foundation, 1928, page 1).

It is, however, necessary in order to give some idea of the operation of the clinic to refer to the methods of instruction of students as well as to the organization of the staff of the Medical Clinic.

In planning an arrangement for the practical instruction of students in clinical medicine it was considered important to concentrate the required work in specified periods of the year, during which time the students would have no duties other than those assigned to them in the medical clinic. This system has been in vogue for the clinical clerkship for many years; and, in many respects, it has advantages which can be utilized in the more elementary courses of instruction. It affords an opportunity to the student to spend the major portion of each day in some part or parts of the clinic; it develops closer contacts between the instructor and the student and it familiarizes him rapidly with the practical conditions under which he has to work. It allows him to direct his attention, consecutively, for a period of weeks to one of the clinical subjects; and, if all of his time is not occupied with required work, it affords him an opportunity to correlate the information and experience which he is acquiring in clinical medicine with his experiences in the laboratories of science or in other clinics. Furthermore, the curriculum at the Johns Hopkins Medical School is devised with the idea that the student will have ample time for elective work, either at the Johns Hopkins Medical School or elsewhere, and it is possible therefore to offer elective courses in medicine which amplify and extend the required instruction in clinical medicine.

The required work in medicine is offered in three courses, an elementary course, a minor course, and a major course. Each course is approximately of eight weeks' duration. The number of students accepted in any one of these courses is limited. For the elementary course seventy-five students are accepted, for the minor course twenty-five, and for the major course twenty. The elementary course is offered once each year, the minor course three times a year, and the major course four times a year. Any student who has completed

satisfactorily the elementary course or an equivalent may apply for admission to the minor course; and any student, who has completed satisfactorily the minor course, may apply for admission to the major course. This arrangement disregards entirely the fact that the student may happen to be in the second, third or fourth year of the medical school. It gives him the privilege of selecting the time in which he will do his required work in clinical medicine, and places on his shoulders very largely the responsibility for determining the sequence in which he will pursue his studies in the clinical subjects. It has also made it possible to accept, for these courses in clinical medicine, students who come from schools other than the Johns Hopkins Medical School, provided their training meets the requirements for admission to the specified course.

The elementary course is devoted very largely to instruction and practice in the technical methods which the student must acquire before he can approach sick people or subject them to examination. During this period the student, therefore, receives instruction in the technique of physical examinations, and studies the normal individual by these methods. He is also introduced to the underlying principles of history-taking, while emphasis is laid on the importance of obtaining information about the patient as well as about his disease. Later he is trained in the examination of the blood, urine, feces, etc. Paralleling this course in clinical microscopy, there is practical instruction in the physical examination of abnormal conditions, and conferences and lectures on the interpretation of abnormal physical signs. All of this work is concentrated in the dispensary and laboratories of the medical clinic, so that the student spends the major portion of his day as an elementary student of the clinic.

When the student enters the minor course in medicine he devotes his mornings until 12 to practical work in the dispensary. From 12 to 1 each day there are clinics in one or another clinical subject. The afternoons are devoted to practical work in the wards, and to advanced work in clinical microscopy. He, therefore, comes in contact with all the forms of activity in the clinic, and is frequently enabled to observe the course of disease, in the patients whom he sees first in the dispensary, through later contact with them in the wards. He also has the opportunity of studying the same patient in the dispensary from day to

day or from week to week; and above all is forced to practise daily, for weeks, the methods he has acquired in the elementary course in medicine.

The students in the major course are assigned to the medical wards as clinical clerks where their principal object is to observe carefully the rapidly changing symptoms and signs of disease, where they may become impressed with disease as an active process, and where they may study the reactions of human beings to the different disease processes from which they suffer. The work is not exclusively confined to the wards, for the students are urged to go to the dispensary to follow their return cases. During the elective periods, moreover, many students who have completed their course in major medicine return to the dispensary for advanced or special instruction. Each day at 12 there are clinics in medicine or in other clinical subjects. One hour each week is devoted to a clinical pathological conference.

These courses are arranged with the idea, that as the student progresses with his work, he becomes gradually an integral part of the clinic, where he may have opportunity for the study of patients and their diseases, where he comes in intimate contact with both junior and senior members of the staff, and where he may learn both from example and by precept.

The medical staff is composed of a group of physicians some of whom devote their entire time to the work of the Hospital and University; some of whom are in practice, and devote only part of their time to the work of the department. Both groups include Associate Professors of Medicine, Associates, Instructors and Assistants. A small number of Fellows and the resident house staff are engaged solely in the work of the hospital or in clinical research. The house staff at the present time includes a resident physician, one first assistant resident physician, five assistant resident physicians and nine internes. About 18 members of the senior staff have duties at one time or another during the year in the wards of the hospital as well as in the units of the dispensary. Each of the four general wards is under the direct supervision of one of a group of three visiting physicians, some of whom spend all their time and others only part of their time in the clinic. An effort is made to associate the work of one medical ward with that of one of the dispensary units, though it is not always practicable to adhere strictly to

this plan. A more successful effort has been made to place one of the Associate Professors, who spends all of his time in the clinic, in charge of one of the laboratories for clinical research. Thus a member of the staff is responsible for the general conduct of the work in one of each group of laboratories equipped for the investigation of disease by physiological, chemical or bacteriological and immunological methods. One member is in charge of the laboratories for experimental syphilis and clinical microscopy. At least six members of the staff, who are in active practice, make ward visits once a week, during different quarters of the year, with the students in Major Medicine. General staff rounds are made once each week in the wards, and a journal club is held one hour a week for the entire medical staff. The arrangements for teaching, as well as for the work in the wards, the out-patient department and laboratories have been conceived with the idea and the hope that all senior and junior members of the staff, full-time and part-time workers, associates, fellows, assistants, resident house staff and students will be frequently and closely associated during the many phases of their clinical duties and in their research.

The organization of the staff, the curriculum of instruction and the close physical connection between the wards, out-patient department and laboratories certainly allow opportunities for an intimate and constant association among visiting staff, house staff and students, with frequent exchange of ideas and opportunities for discussion and criticism of problems for research.

The "Osler Clinic," in its broadest aspect, therefore, embraces wards, groups of units for ambulatory patients, teaching rooms, and a series of laboratories. These parts are combined in a single unit which affords members of the staff an opportunity to concentrate their work in the wards, out-patient department, and laboratories; and the students to use these three essentials of the clinic indiscriminately. The care of the patients, the training of students and assistants, and the investigation of disease cannot be separated, or at times even distinguished; and the intimate physical relationship of the different parts of clinic, and close cooperation of all members of the staff in their work will be an essential feature in the future development of the "Osler Clinic."

DESCRIPTION OF THE HALSTED SURGICAL CLINIC

DEAN LEWIS

The Halsted Surgical Clinic, west of the Medical Clinic, is a seven-storied brick building. Between the Halsted and Osler Clinics is the Hurd Memorial Hall. The seven floors of the Halsted Clinic have the following arrangement.

The first ward, which is for observation and emergency cases, opens off the main corridor. A corridor leads from the Accident Room into the Halsted Clinic on this level. To the north of the long corridor on the west are rooms for an assistant resident and two internes, who occupy them when on accident duty. They are readily accessible and calls at night can be promptly answered. To the left of this corridor are the offices of the surgical supervisor and there is also a lobby in which is located an attendant or information clerk. This ward accommodates seventeen patients. In cases in which a positive diagnosis cannot be made the patient may be put in this ward and studied until it is decided whether he should be sent home or transferred to another for treatment. To the right of the entrance is a well equipped operating room, in which many operations—of course, not the grave major procedures—may be performed. This will be devoted largely to operations following which the patient should stay in the hospital for several hours rather than be discharged immediately.

The colored patients have been assigned to the second floor. This floor accommodates thirty-eight (25 males and 13 females). The female patients are placed in the ward north of a partition which is indicated in the floor plan of Ward 2. This partition is so placed that there is a north entrance to the dressing-room for women and a south entrance for men. The wards indicated upon the floor plan accommodate sixteen patients, there being four small open wards which have four beds each. The central corridor leads from the open porch at the south end of this floor, runs between the first two of the four-bed wards, on past a partition and through the next two of the four-bed wards, then

past the nurses' desk and chart room, opposite which is a one-bed room, then past two rooms on the west side of the corridor, each of which contains two beds. Opposite these on the other side is a room containing four beds. The patients as they return from the operating room are put in these side rooms, and when they have recovered from the immediate effects of the operation are transferred to one of the small four-bed wards. Next along this central corridor is a linen room, a tray room and a utility room on the west side which may be used for the colored men, who are on the south side of the main partition of this second floor, and also for the colored women, who are on the north side. Opposite these on the east side of the corridor is an examining room, and next to this is the first room of the women's side of the floor, a two-bed room. Next to this room is the diet kitchen, and opposite to the latter on the west side of the corridor is the second two-bed room. The central corridor joins at a right angle the corridor running from east to west between the Medical and the Surgical Clinics, and continues north past a third two-bed room and then a four-bed room on the west side, opposite which is the clinical laboratory. A connecting corridor then leads into the second floor of the old Surgical Building, where the X-ray Department is located. Along the corridor running from west to east to the Medical Clinic are a chart room, a room with one bed, a two-bed room, an office for the doctor in charge of the floor, all on the north side, and a classroom on the south side.

The children have been assigned to the third floor. This floor accommodates thirty patients. The central corridor leads from the open porch on the south end of this floor past two four-bed wards on the east side and two on the west, each bed being shut off by a glass partition. Next along the corridor is a one-bed room on each side which may be used for very ill patients or those that require isolation. The chart room comes next on the west side of the corridor, then a utility room, a tray room, a linen room and a play room. Opposite these are three more four-bed wards, an examining room and the diet kitchen. The central corridor joins the one running from west to east to the Medical Clinic, and continues north past a waiting room that may be used by the friends of the patients to the doctors' office, opposite which is the clinical laboratory. There is a classroom on the south side of the corridor leading toward the Medical Clinic and a laboratory on the north

side. Surgical ward rounds are held in these classrooms on the various floors, the patients being wheeled in their beds from the wards to the classrooms on the same floor.

White and colored children occupy separate small wards on this floor.

The fourth floor receives only white females and can accommodate thirty. The central corridor leads from the open porch at the south end, runs between four four-bed wards exactly as on the second floor, then continues past the chart room, a linen room, a tray room, a utility room, a waiting room, and the doctors' office, all on the west side. On the east side of this corridor are a one-bed room, two four-bed rooms, an examining room, a diet kitchen, and a clinical laboratory. A classroom and a laboratory are situated on this floor in a position corresponding to that described for the second and third floors.

Precisely the same plan is carried out on the fifth floor, where there is space for thirty white male patients. The sixth floor accommodates twenty-six patients and is similarly planned, but affords more privacy, since there are no open wards on this floor, but two four-bed rooms, eight two-bed rooms, and two single-bed rooms.

The seventh floor has been assigned to the neurosurgical service and to postoperative cases. It can accommodate twenty-two patients. This floor communicates directly by means of a covered bridge with the general operating-rooms which are situated on the seventh floor of the Dispensary Building. A white and a colored waiting room for families whose relatives are in the operating-rooms are on the east side of the corridor as one enters the floor from the operating-rooms. Next to these is a recovery room for patients too ill to be sent back to the ward immediately after operation, and opposite these are four more recovery rooms, each having a single bed, these beds being in addition to the regular twenty-two ward beds on the floor. The corridor from the operating room intersects the corridor running east and west; this latter corridor, running past a classroom on the south side and a laboratory on the north, leads to the quarters for the assistant resident and interne on duty on the ward. After the central corridor passes the intersection with the east-west corridor it continues out to the open porch. On the west side are an examining room, a utility room, a tray

room, and a linen room, three two-bed rooms and two single-bed rooms; on the east side are six two-bed rooms, the chart room and two one-bed rooms.

On the second, third, fourth, fifth and sixth floors are teaching rooms south of the east and west corridors which connect the surgical with the medical clinic. These teaching rooms, which are used mostly for ward classes, are equipped with shadow boxes, blackboards and the paraphernalia used for physical diagnosis. Ward walks are given as a rule during the first hours of the morning. The patients are taken from the wards in beds or wheel-chairs to this room. By this arrangement the duties on the ward are not interfered with and the patients can be cared for with much greater facility than when a group of students were daily in the ward; furthermore, discussion can be much freer than formerly, when it was carried on within hearing of the other patients in the ward. These teaching rooms have a southern exposure, and the sun shines on them almost all day. The teaching room on the second floor, after ward rounds in the morning, is used as a rest or sun room for the remainder of the day.

On the upper six floors are fully equipped laboratories which are used by students while on ward duty. In each is a wall refrigerator, into which specimens can be delivered by nurses from the corridor and from which they can be removed by the students working in the laboratory.

On the west of the corridor passing into the outpatient department is an assistant resident's room, where the histories may be studied and added to. Next to the stairway on the west side of this corridor is a waiting room for relatives.

Fully equipped laboratories have been provided for the staff, and for students who desire to do advanced work. On the sixth floor is a chemical laboratory, a main one with two smaller rooms abutting on each side.

The largest laboratory is on the fifth floor. This room has not been divided or equipped. It will be equipped to suit the problem which is being investigated. At the present time it is being used by members of the pathological surgical group. The doctors in this group are now engaged in a study of malignant growths, correlating the clinical and pathological findings, and determining the end-results of various forms of treatment. On the third floor is a bacteriological laboratory. It

is hoped that later, when matters of the budget are not quite such a problem, the surgical department may acquire a bacteriologist with a decided surgical bent, for much remains to be done in the borderlands of surgery and bacteriology.

On the seventh floor, north of the main corridor and west of the corridor leading into the operating suite, are six recovery rooms, so arranged that one nurse will be able to watch at least two patients during recovery. The poorer operative risks are kept upon the seventh floor and not taken back to the other wards until they have fully recovered from the operation.

Sleeping rooms and a small lounging room are provided on the seventh floor for an assistant resident and two internes. They are in the immediate neighborhood of the sickest patient and can be easily reached. On the first floor is another suite of rooms west of the corridor connecting the clinic and the outpatient department which accommodates an assistant resident and two internes.

To the east of the corridor connecting the seventh floor of the clinic are waiting rooms for the relatives of both white and colored patients. These are quite near the operating rooms. It has been found that the relatives of patients are perfectly satisfied with this arrangement, and as a result there are no requests to be allowed to go to the operating floor.

The beds in the wards are arranged with curtains on rollers, so that at any time patients may be easily and effectively screened and cubicle effects obtained without difficulty or extra expense.

THE HENRY M. HURD MEMORIAL HALL

W. H. SMITH

The Henry M. Hurd Hall was erected to serve as an assembly hall for lectures, teaching clinics and demonstrations to classes and groups of medical students and nurses, for meetings of the various medical societies and for other assemblies which are held from time to time in connection with the activities of the Hospital and Medical School.

Hurd Hall is a rectangular, two-story building extending from the main corridor into the large court between the Osler and Halsted Clinics. The entrance is from the main corridor of the Hospital. There is also another entrance from the basement corridor which makes it possible to bring in bed-patients or those in wheel-chairs and take them directly to the lower floor level in front of the audience. There are two waiting rooms on this lower level and corridors down both sides of the building leading to the demonstration floor. The building is of steel frame, reinforced concrete and brick construction.

One enters a large vestibule in which is hung a life-size portrait of Dr. Hurd by the eminent American artist, William M. Chase. At the right of the vestibule is a spacious coat-room. At the left is a lounge-room. In this latter room, over the fire place, is hung a bronze portrait of Dr. Hurd by Mrs. Simone Boas, which was presented by the Misses Hurd and friends of Dr. Hurd.

The interior of the main hall is simple but dignified and attractive. The walls of the upper half of the main room are of unpolished marble. Those of the lower half are pannelled with American Walnut. The lighting is effected by means of many semi-indirect fixtures of special design recessed slightly in the ceiling.

The floors are of rubber tiles of attractive design. Careful consideration was given to the acoustics and for that reason rubber flooring was used, cushions were placed on the seats and draperies were hung above and at the side of the screen.

At the front, facing the audience, is a Translux Screen about eight

FIG. 1. MEMORIAL TABLET AT THE ENTRANCE TO HURD HALL

by ten feet. Behind this screen, in a room specially designed for the purpose, are located projection lanterns and moving-picture projectors. Pictures are thrown on the screen from the rear. By this arrangement, the main auditorium is kept free from such apparatus.

There are two large blackboards which, when not in use, are concealed in a recess behind the marble wainscoting beneath the picture screen. These blackboards are raised or lowered mechanically by electric push-button control. All windows can be darkened by light-proof curtains which are automatically controlled by push-buttons directly behind the speaker's stand.

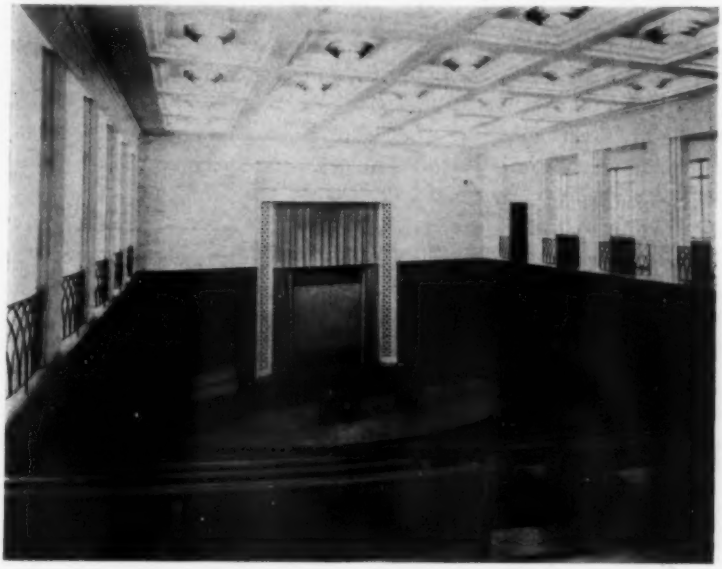

FIG. 2. INTERIOR OF HURD HALL FROM THE UPPER ENTRANCE LEVEL

The main room is heated with hot air from a large chamber beneath the seats, through mushroom inlets. Mechanical ventilation makes it possible to obtain complete change of air as often as may be necessary, depending upon the number of persons in the Hall.

Fixed seats provide for about two hundred and twenty persons. There is ample space behind the seats on the upper level, on the side terraces, and on the floor in front, to place two hundred additional chairs, thus affording a seating capacity of over four hundred. Although occasionally a larger auditorium is needed, it was decided

that the size of the Hall should be such as to meet normal, rather than abnormal, demands.

The two side terraces lead from the upper level to the south end of the building, where doors give exit to a large terrace for open-air meetings if desired.

The south wall facing the central lawn is especially designed for artistic effect. In this wall are set three large limestone cartouches, the centre one bearing the inscription, Henry M. Hurd Hall. Of the other two, one bears the date, 1889, the year in which the Hospital opened, and the other the date, 1893, the year in which the Medical School opened.

The architects for Hurd Hall were Joseph Evans Sperry and his associates who were ably assisted by Mr. Lawrence Fowler.

PRESENTATION OF THE PORTRAIT OF DR. JOHN WHITRIDGE WILLIAMS

H. J. STANDER

Mr. President, Members of the Board of Trustees and of the Faculties, Ladies and Gentlemen:

Just one year and four months ago the University lost its first Professor of Obstetrics, John Whitridge Williams. For over thirty years he served this institution in that capacity, and the Johns Hopkins Hospital as Obstetrician-in-Chief.

During the first ten years of the life of the Medical School, the departments of gynecology and obstetrics were combined under the direction of Dr. Kelly, but in 1899 they became separated, Dr. Kelly retaining gynecology and Dr. Williams becoming the Professor of Obstetrics and Head of this department in the hospital.

It was in 1920, at the Commemoration Day Exercises, that Dr. Welch presented, in behalf of the graduates of the medical department of the University, a portrait of Dr. Williams, which now, very fittingly, hangs in the Welch Library of the Medical School. On that occasion, Dr. Welch pointed out that the presentation of the portrait marked the beginning of a new era, inasmuch as Dr. Williams' department was about to be reorganized on a full-time basis. Most of us here have observed the uninterrupted growth, under the stimulating and strong directorship of Dr. Williams of the full-time department of obstetrics, and here, as a result of his unswerving purpose, for the first time in America, a University Woman's Clinic, along the lines of the German Frauenklinik, was firmly established.

In 1910 Dr. Williams succeeded Dr. Howell as dean of the medical school. For thirteen years he directed its affairs, resigning in 1923 in order to devote all his time and energy to his department. As dean he was the friend and counselor of all the medical students. In him they found an attitude of wise, mature and fatherly interest. Many is the story told of how he counseled and helped a harassed student. His services as Dean of the Medical School cannot be overestimated,

JOHN WHITRIDGE WILLIAMS

and it is well that we remember the spirit and atmosphere which surrounded that Deanship.

His contributions in the whole field of obstetrics, as well as in gynecological pathology, place him in the first rank among investigators throughout the world. Not only was he a constant worker in original investigation, but he was also the main stimulus and example to a host of younger men in his field. How many of the contributions by obstetricians and gynecologists throughout the United States originated in his brain and clinic! His textbook, the final authority in obstetrics, both in America and in Europe, affords ample proof of this to the many who daily consult and read it.

It seems clear that he started his career, as Professor of Obstetrics, with the steadfast purpose to stimulate and train men who would be not only clinicians but also investigators and teachers. This purpose was ever before him, as evidenced by that constant stream of men he trained and sent forth as university professors.

His position as "Dean of Obstetrics" in America is firmly established, but his greatness goes beyond even this. His most noteworthy contribution in the field of medical education was his untiring backing and support of the full-time principle for the teaching staff of the medical school. He played his part, and a major one, in establishing this fundamental principle of teaching in our medical schools of the first rank.

Full-time medicine, the highest possible attainments in teaching and practising obstetrics and in investigation, the training of men and the founding of the first complete Woman's Clinic in this country, did not represent the only purpose and convictions of his life. It was ever his fond hope that the chairs of obstetrics and gynecology would be reunited. In 1914, as president of the American Gynecology Society, he said, in his inaugural address: "I hope I may live to see the day when all teachers, at least, will unite in fostering a broader gynecology, instead of being divided as at present in knife-loving gynecologists and equally narrow-minded obstetricians, who are frequently little more than trained man-midwives."

It is unnecessary for me to dwell further on his personality and character. The people of Baltimore knew him, his father, and his grandfather who settled here in 1820. Much has already been written

about his forebears, his home, his education, and his training. Those who knew him saw in him the aristocrat and gentleman that he was. Those who knew him came to love him and many of those who knew him came under his dominating influence and fell before his charm. He was a man of strong convictions and these he carried with courage.

On this occasion, Mr. President, we who have been trained in the Department and Clinic of John Whitridge Williams, our beloved Chief, in whose ideas, principles, and ideals we believe, and to whom we owe more than mortals can ever repay, present to you this remarkable posthumous portrait of our Chief, from the skillful brush of Mr. Thomas C. Corner, as a small token of our love for him. It is our hope that you will see fit to have it placed in the Woman's Clinic, his clinic, of the Johns Hopkins Hospital.

THE MENTAL AND SOCIAL STATUS OF FIFTEEN HUNDRED PATIENTS IN THE OBSTETRICAL CLINIC OF THE JOHNS HOPKINS HOSPITAL

How This Relates to Problems of Eugenics

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INTRODUCTION

This study had its beginning in October, 1929, as a result of the inspiration and efforts of the late Dr. John Whitridge Williams (1). In 1928 he wrote:

"We have had an increasing opportunity in the Obstetrical Clinic to learn more of the constitutional, psychological, and material peculiarities of our patients . . . involving all sorts of maladjustments and human misfits. . . . Furthermore, I have come into many questions of eugenics which I have not been able to face without sympathy, but whose practical implications I have not been able to follow without doing violence to my inherited and acquired medical conscience . . . I have been so impressed with the importance and magnitude of the problem that I am attempting to raise money to defray the expense for a scientific inquiry into the interrelations between feeble-mindedness in a large series of pregnant women and the welfare of the community."

Upon learning from Dr. Williams about his proposal, Mr. E. Bayard Halsted of New York felt that such a "scientific inquiry" could perhaps contribute facts which might be helpful in furthering a program of eugenics in which he had always taken a deep interest. Accordingly, this survey, the first of its kind, was made possible through a grant from the E. Bayard Halsted Fund for Medical Research. Dr. Williams invited the coöperation of the Henry Phipps Psychiatric staff in planning the three-year study described in the following pages. The writer, a member of the psychiatric staff, was appointed to carry on the investigation.

PROBLEM

To determine the extent of the problem of feeble-mindedness in the dispensary group of patients and its relation to the welfare of the community, the cases were considered from three points of view:

(1) What is the level of intelligence of the dispensary patients in the Johns Hopkins Hospital Obstetrical Clinic which serves the needs of a considerable portion of the population of the city of Baltimore? The conditions observed are probably typical of what would appear in sampling the dispensary patients in any large southern city.

(2) What is the percentage of mentally unfit in the group? This term includes feeble-minded, psychotic, and unstable individuals with mental retardation who have shown themselves to be socially irresponsible, delinquent, or chronically dependent even in normal times.

(3) What factors in the mental condition warrant sterilization? It is obvious that the accumulation of such facts is indispensable to any intelligent consideration of legislation to prevent the propagation of the mentally unfit.

DESCRIPTION OF THE GROUP OF PATIENTS STUDIED

The 1,500[1] patients included in this study were interviewed and examined by the writer while they were under the care of the dispensary of the Obstetrical Clinic. The dispensary group includes all primiparae, any multiparae with physical complications who are delivered on the wards, and normal multiparae who come to the hospital to make prenatal visits, but who are delivered in their homes through the agency of the outside obstetrical service of the Johns Hopkins Hospital.

For the past three years the average number of deliveries each month on the public wards and on the outside obstetrical service has been 119. The average number seen per month during the period given to interviewing[2] patients was 100. This means that over 80 per cent of the dispensary cases were examined.

Race distribution

The race distribution of the group surveyed is similar to that of all patients cared for by the obstetrical department in the past three years. Among the group studied, 49 per cent were white and 51 per cent colored, while corresponding figures for deliveries on the public wards and outside obstetrical service were 47 per cent and 53 per cent, respectively.

As shown in Table I, the preponderance of colored patients at the Johns Hopkins Hospital (51 per cent) over the proportion found in the

[1] Two histories were not used—one was too incomplete and one was a duplication due to change in name. Special cases referred to the examiner during this period were not included in the study.

[2] All the time, of course, could not be given to interviews. It was necessary to read medical and social records, review material, etc.

Baltimore city population (18 per cent) is explained by the fact that the Johns Hopkins Hospital is the only hospital in this district which has resources for taking care of both white and colored patients.

Nationality

Of the 731 white patients examined, nearly 12 per cent were foreign born and 24 per cent American born of foreign parentage.

The small percentage of foreign born at Johns Hopkins Hospital compared with the percentage of foreign born in the total city population may be accounted for by the fact that a large proportion of the

TABLE I

Color and nationality of patients examined

NATIONALITY	PATIENTS EXAMINED		POPULATION OF BALTIMORE CITY PERCENTAGE
	Number	Percentage	
American born		94.6	90.7
Colored	767	51.2	17.7
White	650	43.4	73.0
Foreign born		5.4	9.3
Italian	28	1.9	1.1
British	15	1.0	1.1
German	12	0.8	1.7
Polish	8	0.5	1.4
Russian	4	0.3	2.2
Greek	3	0.2	0.1
Others and unknown	11	0.7	1.7
Total	1498	100.0	100.0

foreign-born population has not been educated to the use of hospital facilities, and employs midwives in their homes. The small number of German, Russian, and Polish Jews who do take advantage of hospitalization have available the Sinai Hospital which is in close proximity to the Johns Hopkins Hospital.

Religion

Over one-third of the white patients examined were Catholic and 60 per cent were Protestant, while 90 per cent of the colored patients were

Protestant. The religious census (2) of church membership for Baltimore City in 1926 showed that approximately 40 per cent of the white population were Catholic.

Age and parity

Of the group examined, 10 per cent of the white patients and 18 per cent of the colored patients stated that they were first pregnant at the age of 16 years or younger.

Forty-one per cent of the group were primiparae. This corresponds fairly closely with the total obstetrical population of the hospital dispensary of whom 36 per cent were primiparae.

TABLE II

Marital status of patients examined

MARITAL STATUS	NUMBER			PERCENTAGE		
	White	Colored	Total	White	Colored	Total
Married:						
Once	596	509	1105	81.5	66.4	73.8
More than once	30	23	53	4.1	3.0	3.6
Widowed	2	8	10	0.3	1.0	0.7
Separated	29	28	57	4.0	3.6	3.8
Divorced	2	0	2	0.3	0.0	0.1
Deserted	8	12	20	1.1	1.6	1.3
Marriage questioned	9	14	23	1.2	1.8	1.5
Single*	55*	173	228	7.5*	22.6	15.2
Total	731	767	1498	100.0	100.0	100.0

* These figures include some of the unmarried mothers from the Florence Crittenton Mission, all of whom are cared for at the Johns Hopkins Hospital.

Marital status

According to their own statements, as given in Table II, 7.5 per cent of the white and 22.5 per cent of the colored patients examined were unmarried. These figures do not include a few cases in which the alleged marriage of the patient was questioned.

According to the statistics of the State Department of Health for 1930, the percentage of illegitimacy among the live births in Baltimore City was 1.7 per cent among the whites and 21.9 per cent for the col-

ored. It will be noted that the illegitimacy disclosed by the State Department of Health for the colored is very close to that of the colored patients in the group examined, but among the whites it is much lower.

METHODS OF EXAMINATION AND HISTORY OUTLINE

Method of interviewing patients

A uniform history outline was used in recording the information obtained from the interview with each patient. After the first 1,000 patients had been examined, it was considered advisable to revise the outline so that some of the items could be recorded in more detail and with greater precision. The revised outline used with the last 500 patients interviewed is included in the appendix (p. 310).

It was not possible to schedule the interview at a specific period during the pregnancy since patients apply for care at varying times. Over three-fourths of the patients were interviewed when they made prenatal visits, while nearly one-fourth were seen after delivery, just before their discharge from the hospital.

Social history

Supplementary to the history obtained by the writer in a private interview with each patient, additional information was secured from social agencies concerning patients who were registered in the Social Service Exchange.[3]

Nearly one-half of the patients examined were known to social service, charitable, health, and correctional agencies. A number of these agencies gave access to their records, while others sent information in response to written requests. In a few cases the available information was insufficient. The outline used in requesting information from agencies is included in the appendix (p. 314).

All available social information was obtained for the first 1,000 cases. This served not only as a valuable check on the statements of the patients but also gave additional data, including the family background.

[3] Invaluable service in this connection was rendered by the Social Service Exchange which made it possible to identify patients known to social agencies. The agencies were coöperative, and most of them were able to give the information requested. To the Family Welfare Association we are especially indebted for the large number of detailed reports furnished.

Only one-third of available social records for the last 500 cases were obtained, partly owing to lack of time and also because of the overwork of the social agencies resulting from the economic depression.

Medical history

The hospital history of each patient was available and from this record the results of the physical examinations made in the Obstetrical Clinic and in any other departments of the hospital were obtained. The health during pregnancy was considered for the period from the time the patient first applied for care until six weeks after delivery.

Personal interview

In the personal interview, of which the outline followed is given on pages 310–312, identifying and personal data were obtained. These included a record of the early environment, neurotic traits, physical and mental health, habits, delinquency trends, school and work records, economic and hygienic conditions, and sex history. Significant facts concerning the family background, the husband, and the children were also procured.

During the interview, observations and notations were made with respect to the patient's behavior, mood, and coöperation. A detailed examination of the mental status was made when unusual behavior was noted or some mental disturbance was suspected. When mental illness was in question or the patient's statements were vague or lacked frankness, an interview with a parent or close relative was requested.

Intelligence tests

The Stanford Revision of the Binet-Simon Tests was used to measure the intelligence of the patient. The result of the tests is expressed in terms of mental age, or Intelligence Quotient. A mental age of eight years means that an individual is able to pass those tests which are satisfactorily completed by the average child of eight years. The Intelligence Quotient (I.Q.) for an adult is the percentage obtained by dividing the ascertained mental age of a given individual by the average mental age for adults. Terman first posited the average adult level as 16 years but later questioned this as too high. Psychometric work done with over a million and a half men drafted during the World

War indicated a level between 13 and 14 years for white and about 10 years for colored adults. When patients in our group were able to pass the tests at the level for 14 years, their intelligence was considered satisfactory and no further tests were given. Tests were not given to patients with a language difficulty, nor to those whose physical or mental condition was unfavorable at the time. In all doubtful cases the results were recorded as questionable.

RESULTS OF EXAMINATIONS

Coöperation of patients

Most of the patients were found to be very coöperative. Only one patient refused the examination. Thirteen, recorded as poor in cooperation, showed some antagonism to the interview, but were persuaded to complete it.

First 1,000 and last 500 cases tabulated separately

In summarizing certain data, separate tabulations were made for the first 1,000 and the last 500 patients, as shown in Table III. This seemed desirable because the information secured from social agencies for the last 500 cases was less complete than that obtained for the first 1,000 cases, due, as stated before, not only to lack of time but also to the fact that the social agencies were overwhelmed with work, at the later period, resulting from the economic depression. This lack in the data secured from outside sources was offset, however, by the improvement in completeness and exactness of the revised history outline, which was used in interviewing the last 500 patients. Since the average intelligence of the last 500 patients examined was higher than that of the first 1,000 cases, it was possible to secure from them more reliable and valuable histories.

As seen in Table III, the increase in the proportion of patients with higher intelligence found among the last 500 patients might possibly indicate that persons, who under ordinary conditions would have had private care, found it necessary in 1930 to accept dispensary service.[4]

As seen in Table IV, a larger proportion of the last 500 than of the

[4] Reports from the Children's Bureau show that the proportion of free care in hospitals has increased noticeably in recent years.

first 1,000 cases were registered with the Social Service Exchange. There was likewise an increase in the percentage receiving continuous and occasional relief—the increase being more marked among the colored than among the white patients. It is interesting to note that a larger percentage of white than of colored patients were registered with the Social Service Exchange, but that relatively more of the colored than of the white patients received financial assistance.

TABLE III

Percentage of seriously defective and feeble-minded in the first 1,000 and last 500 patients

PATIENTS EXAMINED	PERCENTAGE SERIOUSLY DEFECTIVE AND FEEBLE-MINDED WITH MENTAL AGE OF 11 YEARS AND UNDER	
	White	Colored
First 1,000 cases	39.5	73.6
Last 500 cases	24.6	56.6

TABLE IV

Comparison of social dependence of first 1,000 and last 500 patients

PATIENTS EXAMINED	PERCENTAGE REGISTERED WITH SOCIAL SERVICE EXCHANGE		PERCENTAGE RECEIVING FINANCIAL ASSISTANCE			
			Continuous		Occasional	
	White	Colored	White	Colored	White	Colored
First 1,000 cases	50.1	37.2	6.1	7.4	2.9	5.9
Last 500 cases	63.7	54.1	7.8	9.0	6.6	12.8

Classification of patients according to mental age

For measuring such human factors as intelligence and emotions exact scientific instruments have not yet been devised. The classification of patients according to intelligence with any approach to absolute accuracy is, therefore, impossible with the tests available at the present time.

For the purposes of this study, the patients have been classified according to mental age ascertained by the Binet-Simon intelligence test into the five following groups:

1. The *seriously* defective with a mental age under 8 years. In this group the lowest mental age found was 5 years.

2. The *feeble-minded*, with a mental age from 8 to 11 years.
3. The *borderline* with a mental age of over 11 and under 13 years. They are designated as borderline because the group to which they properly belong is in question.
4. The *average* with a mental age of 13 years and over.
5. A miscellaneous group.

All authorities seem to agree that adults with a mental age under 8 years are most seriously defective. Goddard (3) has said that adult individuals with a mental age under 8 years are utterly incapable of functioning as efficient members of society. All such patients are placed in the first group and designated as seriously defective.

In common practice individuals with mental ages from 8 to 12 years, or with Intelligence Quotients under 70 to 75, are classified as morons, the American term, or feeble-minded, the English term. Since some authorities hesitate to call any individual with a mental age over 11 years feeble-minded, only those patients of the group studied with a mental age from 8 to 11 years, inclusive, are designated as feeble-minded in group 2. Such persons are seriously defective and, even when willing to try, they rarely by their own merits get beyond the accomplishments of average pupils in the fifth or sixth grade. Tredgold (4) has said the classification of feeble-mindedness or mental deficiency "should be restricted to those persons who are so lacking in general mental capacity, in common sense, that they are incapable of subsisting by their own unaided efforts." The British law has described them as "those individuals with a mental defect so pronounced that they require care, supervision and control for their own protection and for the protection of others." Without the favorable circumstances of protective care or supervision they become members of the group made up of the chronic dependent, delinquent, and unstable. An analysis of group 2, described in detail later, corroborates these opinions.

Individuals in the third group with a mental age over 11 years and under 13 years are called borderline.

Group 4 includes those with a mental age of 13 years or over who are regarded as average or satisfactory.[5]

Group 5 includes miscellaneous cases which were not tested because

[5] For further discussion of this point see page 282.

of a language difficulty or because the complication of a mental or physical condition made any testing unfair.

Mental age according to the Binet-Simon Tests

Table V gives the number and percentage of patients examined and the ascertained mental ages. The median mental age for the white patients examined was 12.3 years and for the colored 10.6 years.

TABLE V

Ascertained mental age of patients examined

MENTAL AGE	WHITE						COLORED					
	Number in			Per cent in			Number in			Per cent in		
	1 to 1000	1001 to 1500	Total	1 to 1000	1001 to 1500	Total	1 to 1000	1001 to 1500	Total	1 to 1000	1001 to 1500	Total
7 years and under.	9	4	13	2.2	1.7	2.0	35	15	50	6.9	6.2	6.7
8 years.....	15	5	20	3.6	2.1	3.1	28	12	40	5.6	4.9	5.4
9 years.....	44	13	57	10.7	5.4	8.7	124	34	158	24.6	14.0	21.1
10 years.....	93	29	122	22.5	12.0	18.6	162	65	227	32.1	26.8	30.4
11 years.....	52	40	92	12.6	16.6	14.1	58	37	95	11.5	15.2	12.7
12 years.....	48	33	81	11.6	13.7	12.4	40	29	69	7.9	11.9	9.2
13 years.....	50	21	71	12.1	8.7	10.8	30	25	55	6.0	10.3	7.4
14 years and over...	102	96	198	24.7	39.8	30.3	27	26	53	5.4	10.7	7.1
Total tested.....	413	241	654	100.0	100.0	100.0	504	243	747	100.0	100.0	100.0
Median* age.....	11.9	12.9	12.3				10.4	10.9	10.6			
Test not given or questioned.....	62	15	77	13.1	5.9	10.5	20	0	20	3.8	—	2.6
Total in group...	475	256	731				524	243	767			

* The median is that measure of central tendency or average above and below which an equal number of cases fall, or expressed in another way, if the cases were arranged in ascending order according to mental age, the median would represent the mental age of the middle case.

As shown in Table VI, two per cent of all white and nearly 7 per cent of the colored patients tested have a mental age under 8 years. Adults with this mental age level are considered incapable of functioning efficiently outside an institution.

Including the seriously defective, 39 per cent of the 654 white patients tested were feeble-minded with a mental age of 11 years or under. If

10 years is used as the average mental age of colored adults, then one-third of the colored patients tested are found to be feeble-minded and seriously defective, with a mental age under 10 years. However, when the same age levels are used, 70 per cent of the colored compared with 39 per cent of the white patients tested have a mental age of 11 years or less.

Age at leaving school and grade completed

In Table VII the age at leaving school for both the white and colored groups indicated that the more intelligent stayed in school longer and

TABLE VI

Patients classified as seriously defective, feeble-minded, borderline, and average

GROUP	MENTAL AGE	WHITE				COLORED			
		Number			Per cent	Number			Per cent
		In 1 to 1000	In 1001 to 1500	Total		In 1 to 1000	In 1001 to 1500	Total	
1	*Under 8 years:* Seriously defective	9	4	13	2.0	35	15	50	6.7
2	*From 8–11 years:* Feeble-minded	183	59	242	37.0	351	123	474	63.4
3	*Over 11 and under 13 years:* Borderline	69	61	130	19.9	61	54	115	15.4
4	*13 years and over:* Average	152	117	269	41.1	57	51	108	14.5
	Total tested	413	241	654	100.0	504	243	747	100.0
5	*Not tested:* Miscellaneous	62	15	77	10.5	20	0	20	2.6
	Total in group	475	256	731		524	243	767	

completed more grades. Close to 40 per cent of both white and colored patients said they left school to go to work. (Ten per cent of the colored, over one-half of whom belonged to the most intelligent group, left school because of pregnancy.) At least 50 per cent of the white and colored patients considered seriously defective and feeble-minded were illiterate. Only one white patient classified as seriously defective went beyond the sixth grade. It is interesting to note that more of the colored than of the white patients went beyond the sixth grade. This may indicate that a lower standard of achievement was required of the colored than of the white pupils for promotion to the upper grades.

Work and salary record

The data in Table VII show that the average age at which both white and colored patients first went to work increased as the intelligence reached higher levels. Similarly the more intelligent were paid higher salaries.

Of the white patients, about 50 per cent had worked in factories, over 16 per cent in clerical work, and over 11 per cent in domestic service, while about one-fourth gave a history of never having worked. Over three-fourths of the colored patients had been or were domestic servants or nurse-maids, while only 14 per cent had worked in factories, and 11 per cent reported that they had never worked.

TABLE VII

Number and percentage of patients in each intelligence group who continued in school beyond the sixth grade, and average salary earned

GROUP	MENTAL AGE	NUMBER AND PER CENT CONTINUING BEYOND SIXTH GRADE				AVERAGE SALARY EARNED	
		White		Colored		White	Colored
		Number	Per cent	Number	Per cent		
1	*Under 8 years:* Seriously defective	1	7.7	6	12.0	$6.13	$6.97
2	*From 8–11 years:* Feeble-minded	88	36.4	239	50.3	10.64	7.83
3	*Over 11 and under 13 years:* Borderline	75	57.8	91	79.2	11.57	8.36
4	*13 years and over:* Average	217	80.6	99	91.7	12.33	9.15

Economic status

In analysing the economic situation of the different groups as shown in Table VIII continuous and occasional dependence on social agencies and relatives is more evident among the less intelligent of the white patients. Over 50 per cent of the seriously defective group of white patients were receiving relief. In 1929, 6 per cent of the white feeble-minded and 2.6 per cent of the group of average intelligence were receiving relief continuously, while, by 1930, 13.6 per cent of the feeble-minded and 5.1 per cent of the more intelligent needed constant help. This suggests that the feeble-minded are the first to become economically dependent, and that at all times they are more in need of financial assistance than are those of higher intelligence.

A much smaller percentage of the seriously defective colored than of the white patients were recipients of relief. The contrast was less marked for the groups of higher intelligence. This may be explained by the fact that the seriously defective colored patient is perhaps less accustomed to seek relief from social agencies than the white patient having a similar lack of intelligence.

Among the more intelligent colored and white patients the husband alone carries an increasing share of the family support, a fact which would seem to indicate that the more intelligent patients have chosen

TABLE VIII

Percentage of patients in each intelligence group receiving continuous or occasional financial assistance

GROUP*	PER CENT RECEIVING RELIEF							
	White				Colored			
	In 1 to 1000		In 1001 to 1500		In 1 to 1000		In 1001 to 1500	
	Continuous	Occasional	Continuous	Occasional	Continuous	Occasional	Continuous	Occasional
1	44.4	0.0	50.0	25.0	0.0	14.3	14.3	28.6
2	6.0	8.7	13.6	15.3	2.6	6.3	10.6	13.0
3	4.3	13.0	3.3	9.8	4.9	3.3	1.9	14.8
4	2.6	4.6	5.1	5.1	5.3	3.5	0.0	5.9

*Group	*Mental age*	*Description*
1	Under 8 years	Seriously defective
2	From 8–11 years	Feeble-minded
3	Over 11 and under 13 years	Borderline
4	13 years and over	Average

superior husbands. On the other hand, among many patients of lower intelligence the family support tends to depend more and more on the work of the wife and children, and on social agencies.

Delinquencies

Of the patients interviewed, 17.6 per cent of the white and 57.8 per cent of the colored patients admitted illicit sex relations, *i.e.*, sex relations before marriage and with others than their husbands after marriage. Only two white and five colored patients admitted extramarital relations while living with their husbands. For both races there is a definite decrease in illicit sex relations as intelligence increases.

The percentage of illegitimate pregnancies varied little according to intelligence for the white patients. Among the colored the percentage was lowest for the most intelligent group. Even among the most intelligent of the colored, however, the percentage of unmarried, as seen in Table II (p. 279), is still much higher than the average percentage for all white patients.

Health status[6]

In considering the health records of the white patients only one-fourth were rated satisfactory,[7] while over one-third had defective teeth, over one-fourth had some evidence of kidney disease, and over one-tenth showed evidences of mental illness or gave histories of mental disturbances.[8] Over 3 per cent gave histories of or had syphilis and 2 per cent had gonorrhea. Corresponding figures for the colored patients show 22 per cent had satisfactory health; while 43 per cent had defective teeth, 29 per cent unsatisfactory kidney conditions, and 5 per cent disturbed mental conditions. As shown in Table IX, syphilis was present in 23 per cent of the colored patients and gonorrhea in 2.6 per cent. In the group with higher intelligence, the incidence of venereal diseases was less for both the white and colored patients.

The percentage of gonorrhea reported is probably too low because the source of information regarding this was chiefly the patient herself. In the case of syphilis, on the other hand, the information was much more reliable, since it was based on Wassermann reports and on the past record of the patient in the syphilis clinic.

Mental disturbances

The percentage of patients with indications of mental instabilities was also higher in the groups with low intelligence. In considering the mental disturbances among the patients of low intelligence, we found a

[6] The health record was obtained from the hospital medical reports.

[7] This may seem a low percentage with satisfactory health, but a report of the examination by the physicians of the Playground Athletic League of over 6,000 white high school pupils from eight Maryland counties showed only 13.1 per cent of boys and 15.9 per cent of the girls had satisfactory health (5).

[8] Popenoe (6) estimated that 4 per cent of the population of the country at some time will be patients in mental hospitals. This estimate was based on reports of the U. S. Census Bureau ending January 1st, 1923.

tendency to poorly formulated psychoses.[9] Under the strain of pregnancy these patients reacted with such complaints as worry, poor sleep, fears, tearfulness, twitchings, spells,[10] depression with hypochondriacal complaints, suicidal threats, and exhaustion states with delirious-like episodes and schizophrenic features. The diffuseness of the complaints and symptoms[11] often made it difficult to evaluate the seriousness of the condition. These reactions often seemed to be the result

TABLE IX

Diseases definitely diagnosed or questioned for patients included in the study

DISEASE	WHITE				COLORED			
	Number		Total		Number		Total	
	Diagnosed	Diagnosis in question	Number	Per cent	Diagnosed	Diagnosis in question	Number	Per cent
Dental	136	118	254	34.7	163	168	331	43.1
Toxemias*	149	59	208	28.4	156	64	220	28.5
Mental	36	49	85	11.6	16	23	39	5.0
Neurological	27	25	52	7.1	27	13	40	5.2
Pelvic** conditions	26	12	38	5.1	18	18	36	4.6
Cardiac	21	8	29	3.9	15	7	22	2.8
Syphilis	18	9	27	3.6	125	49	174	22.6
Tuberculosis	14	7	21	2.8	9	4	13	1.6
Gonorrhea	8	6	14	1.9	11	9	20	2.6
Miscellaneous diseases	69	68	137	18.7	41	48	89	11.6
None			184	25.1			174	22.6
Total examined***	316	231	731		335	265	774	

* Including chronic nephritis.

** Not including bony abnormalities.

*** Since any one patient may have had more than one of these conditions, the sum of the number of diseases is greater than the number of patients examined.

[9] Psychoses—the general term used to describe various forms of mental illness such as Manic-depressive, Schizophrenia (Dementia Praecox) etc.

[10] Because of the poor histories even when relatives were interviewed, it was often difficult to differentiate attacks of hysteria and epilepsy.

[11] In a chapter on Mental Hygiene in Kelly's Gynecology (7) Dr. Esther Richards has described this tendency of patients to have "diffuse physical complaints which are often unconscious substitutions for a poor adaptation to situational difficulties."

of worry and superstition about labor; fear about the effect of another pregnancy on their own health; the strain of a too rapidly increasing family and concern over the added economic burden of caring for another child, and sometimes due to anxiety about possible infidelity on the part of the husband.

Family background

The social information obtained about the parents and siblings of the patients has been grouped under three main headings:

1. Heredity and health
2. Environment
3. Economic situation

When considered from these three standpoints, as seen in Table X, we find that only 9.7 per cent of the white and 9 per cent of the colored patients have records which indicated that the family background was stable or satisfactory.

Among the families of the white patients are found the following undesirable conditions: 25 per cent were known to social agencies, over 25 per cent had a history of alcoholism, 15 per cent had records of mental illness or psychiatric hospitalization, and 28 per cent had histories of poor physical health, including tuberculosis and carcinoma. Unsatisfactory environmental factors occurred in over 30 per cent, general incompetency in nearly 10 per cent, and court records in over 8 per cent. In over one half of the cases the economic situation was poor or had been so.

In general the family background of the colored resembled that of the white patients. Over 18 per cent were known to social agencies, over 16 per cent gave a history of alcoholism, 10 per cent of mental illness, and over 18 per cent of poor physical health. Over 40 per cent came from unsatisfactory social environments, 10 per cent were incompetent, and 6 per cent had court records. In over 60 per cent of the families the economic situation was reported unsatisfactory.

It is interesting to note that more of the intelligent than of the defective colored patients reported the economic situation as unsatisfactory. Possibly this is due to the higher standards prevailing among the more intelligent colored patients.

TABLE X

Number and per cent of white patients having satisfactory and unsatisfactory family backgrounds

†Group	FAMILY BACKGROUNDS				NEGATIVELY SIGNIFICANT FACTORS IN BACKGROUND						
	Apparently satisfactory	Significant		No information	Hereditary and health			Environment			Economic***
		Negatively	Questionably		Alcoholic history	Mental illness	Poor physical health	Social* situation	General** incompetence	Court records	
	Number										
1	1	8	4	0	6	2	5	7	3	0	7
2	19	100	121	2	69	47	66	72	39	25	138
3	10	52	67	1	40	20	33	43	6	14	72
4	33	77	156	3	69	32	85	88	12	19	122
5	8	16	50	3	11	9	16	15	7	1	28
Total	71	253	398	9	195	110	205	225	67	59	367
	Per cent										
1	7.7	61.5	30.8	0.0	46.2	15.4	38.5	53.8	23.1	0.0	53.8
2	7.9	41.3	50.0	0.8	28.5	19.4	27.3	29.8	16.1	10.3	57.0
3	7.7	40.0	51.5	0.8	30.8	15.4	25.4	33.1	4.6	10.8	55.4
4	12.3	28.6	58.0	1.1	25.7	11.9	31.6	32.7	4.5	7.1	45.4
5	10.4	20.8	64.9	3.9	14.3	11.7	20.8	19.5	9.1	1.3	36.4
Total	9.7	34.6	54.4	1.2	26.7	15.0	28.0	36.8	9.2	8.1	50.2

†Group	*Mental age*	*Description*
1	Under 8 years	Seriously defective
2	From 8 to 11 years	Feeble-minded
3	Over 11 and under 13 years	Borderline
4	13 years and over	Average
5	Not tested	Miscellaneous

* Social situation includes data relating to homes broken through divorce or separation, homes with step-parents, or with low standards of morality, and cases of institutional care.

** General incompetency includes illiterate parents, poor standards of hygiene, and cases of neglect of children.

*** Economic situation is considered unsatisfactory when the father gave inadequate support due to incompetency or the large number of dependents; when the women or children went to work early, and when the family was not self-supporting.

TABLE X—*Concluded*

Number and per cent of colored patients having satisfactory and unsatisfactory family backgrounds

†Group	Family backgrounds				Negatively significant factors in background						
		Significant			Hereditary and health			Environment			
	Apparently satisfactory	Negatively	Questionably	No information	Alcoholic history	Mental illness	Poor physical health	Social* situation	General** incompetence	Court records	Economic***
Number											
1	3	18	23	6	8	7	6	21	10	5	28
2	45	139	266	24	84	42	81	197	47	35	281
3	10	34	67	4	20	12	26	40	9	7	68
4	6	34	67	1	25	12	25	45	11	2	78
5	5	7	6	2	2	5	6	9	0	2	7
Total	69	232	429	37	139	78	144	312	77	51	462
Per cent											
1	6.0	36.0	46.0	12.0	16.0	14.0	12.0	42.0	20.0	10.0	56.0
2	9.5	29.3	56.1	5.1	17.7	8.9	17.1	41.6	9.9	7.4	59.3
3	8.7	29.6	58.3	3.5	17.4	10.4	22.6	34.8	7.8	6.1	59.1
4	5.6	31.5	62.0	0.9	23.1	11.1	23.1	41.7	10.2	1.9	72.2
5	25.0	35.0	30.0	10.0	10.0	25.0	30.0	45.0	0.0	10.0	35.0
Total	9.0	30.2	55.9	4.8	18.1	10.2	18.8	40.7	10.0	6.6	60.2

†Group	*Mental age*	*Description*
1	Under 8 years	Seriously defective
2	From 8 to 11 years	Feeble-minded
3	Over 11 and under 13 years	Borderline
4	13 years and over	Average
5	Not tested	Miscellaneous

* Social situation includes data relating to homes broken through divorce or separation, homes with step-parents, or with low standards of morality, and cases of institutional care.

** General incompetency includes illiterate parents, poor standards of hygiene, and cases of neglect of children.

*** Economic situation is considered unsatisfactory when the father gave inadequate support due to incompetency or the large number of dependents; when the women or children went to work early, and when the family was not self-supporting.

Comparing the two races, the percentage of families which showed poor social and economic situations was higher among the colored than among the white patients. On the other hand, it is surprising to find that this condition is reversed when one compares the percentages having unsatisfactory hereditary and health factors, which were higher among the white than among the colored. This may perhaps be explained by the fact that the white patients were of higher intelligence and were able to give more details of their background. The percentage of detrimentally significant factors in both races, however, was higher in the defective than in the intelligent groups.

Information about the husbands and children of patients

It will be noted from the history outline followed (see pages 312 and 313), that information was sought about the husband and children of each patient.

The data about each husband were obtained from the patient and social agencies. Information was sought concerning intelligence, school and work records, economic independence, health, evidences of stability, sense of responsibility and any delinquencies. It seems significant that the husbands of patients of higher intelligence had decidedly fewer indications of undesirable factors than the husbands of patients of low intelligence.

Information about the children was too incomplete to be used statistically. The patients were often unable to give facts concerning the health and school records of their children. It was not possible to undertake physical and mental examinations of the children, except in a few cases, when the patient was being considered for sterilization.

Use of contraceptives[12]

As seen in Table XI, over 60 per cent of 256 white patients and over 30 per cent of 243 colored patients admitted the use of some means of

[12] Data for the last 500 cases only are reported as the information regarding birth control for the first 1000 cases was incomplete. However, for the first 1000 patients from whom information was obtained, the percentage who admitted the use of contraceptives is practically the same as that for the last 500 patients interviewed.

birth control. The use of contraceptives appeared to have no relation to the degree of intelligence of the patients.

Coitus interruptus, condoms, or both, were used by over 40 per cent of the white patients who attempted means of birth control, while 29 per cent reported the use of a medicated or plain water douche. The douche was used by over 50 per cent and condoms by over 40 per cent of the colored patients who tried birth control methods. Of a number

TABLE XI

Use of contraceptives by the last 500 cases

CONTRACEPTIVES	WHITE		COLORED	
	Number	Per cent	Number	Per cent
Used	155	60.6	75	30.9
Not used	95	37.1	158	65.0
Use questioned or unknown	6	2.3	10	4.1
Totals	256	100.0	243	100.0

TABLE XII

Number and percentage of patients showing various attitudes toward contraceptive advice

ATTITUDE TOWARD CONTRACEPTIVE ADVICE	WHITE		COLORED	
	Number	Per cent	Number	Per cent
Advice desired	189	73.8	200	82.3
Not desired for special reason*	25	9.8	12	4.9
Opposed on religious or moral grounds	7	2.7	2	0.8
Unknown	35	13.7	29	12.0
Totals	256	100.0	243	100.0

* Includes patients satisfied with their own methods or those who were to be sterilized.

of patients who had been given letters to the birth control clinic, only 4 white and 1 colored patient had actually reported. Only 12 white and 1 colored patient stated that they had used any method successfully. These 13 patients belonged to the more intelligent groups.

Over one-third of the white and nearly two-thirds of the colored patients denied the use of contraceptives. The most common reason given for lack of use of any contraceptives was that methods were unknown. Dr. Raymond Pearl (7a) in a report on contraception and

fertility in 2,000 women states that 64.2 per cent of the white and 84.6 per cent of the colored patients denied the use of any method for preventing conception.

Attitude toward contraceptive advice

Nearly 75 per cent of the white and over 80 per cent of the colored patients, as shown in Table XII, desired birth control advice, while less than 3 per cent of the white and less than 1 per cent of the colored patients indicated that they disapproved of contraceptive measures.

DISCUSSION

This study was undertaken to determine the incidence of feeble-mindedness in a series of pregnant women and to ascertain the average mental age of obstetrical dispensary patients. The investigation has a bearing on the question of sterilization of the mentally unfit, which includes not only the feeble-minded, but psychotic and unstable mentally retarded individuals.

Fifteen hundred patients were interviewed, only 13 of whom were not entirely coöperative. The group studied was representative of the total obstetrical dispensary population including 80 per cent of the obstetrical dispensary patients, but was not representative of the total population of Baltimore City, since it included a much larger proportion of negroes and a smaller proportion of foreign born than is found in the city.

The median mental age of the white patients was found to be 12.3 years and that of the colored 10.6 years. It will be recalled, as a result of the army tests, that the average mental age for white adults was placed between 13 and 14 years, and for the colored at 10 years.

It is evident from this study that dispensary patients manifest a high incidence of feeble-mindedness, since 39 per cent of the white patients tested, and 70 per cent of the colored, were found to be feeble-minded—with a mental age of 11 years or under. If however the colored are measured by their own average standard of 10 years, only one-third of them would be considered feeble-minded. This probably means that two-thirds of the colored patients tested would be equal to or above the average standard for their own race; but if they are measured by the standard for the white population, the colored patients show a

much higher percentage of feeble-mindedness than the white patients tested.

Two per cent of the white and over 6 per cent of the colored patients were very seriously defective, with a mental age under 8 years—a mental level which most authorities believe indicates a need for institutional care. This high incidence of feeble-mindedness among the dispensary patients suggests that conditions were relatively far more serious in the group examined than they would be for a cross section of the general population.[13]

The school and work records of the patients obtained indicated that the school grade completed, the type and regularity of work, and the salaries earned increased steadily with the mental age. It is worthy of note that the mental age groupings resulting from the tests are supported by the findings on school and work records.

The burden which the community bears for the mentally subnormal is disclosed when it is realised that over 50 per cent of the feeble-minded white patients were known to one or more social agencies for some significant reason. For the colored, the percentage was only slightly less.

In nearly one-third of the families of white and colored feeble-minded patients, the husband was not the sole support of the family. Agencies and relatives supplemented the family income. At the time of the interview, the percentage of white patients in the most seriously defective group who were receiving help from agencies was three times as great as was that of the patients with average intelligence. Six of the 13 most defective white patients had received relief continuously or repeatedly. The most defective colored patients had less help from agencies than the white, probably because they did not know enough to seek help, their standards are lower and also because they received help from relatives and more of them worked during their pregnancy.

In the interviews illicit sex relations were admitted by 17.6 per cent of the white and 57.8 per cent of the colored patients. There were

[13] J. E. Wallace Wallin (8) states that from 2 to 4 per cent of the American public school children are defective. The public school population, however, does not usually include those children who are physically and mentally too defective to attend school. Therefore, the rate for the general population would be slightly higher than that for the public school population.

definitely more illicit sex relations admitted among the less intelligent patients.

The percentage of illegitimate pregnancies among the white patients varied little according to intelligence, but the group is too small to warrant any conclusions. Illegitimacy among the colored was less in the most intelligent group. Illegitimate pregnancies among the white patients were 7.5 per cent in contrast with 22.5 per cent for the colored. Since the statistics of the State Department of Health, 1930, on illegitimate births are 1.7 and 21.9 per cent, respectively, for the white and colored births in Baltimore, this might indicate that the white obstetrical dispensary population is distinctly inferior to the general white population of the city, while the colored obstetrical dispensary population may be characteristic of the general colored population of the city.

Our statistics indicate that only one-fourth of all patients were recorded as having satisfactory health. The incidence of syphilis, gonorrhea, and of mental disturbances was higher in the groups of low intelligence. The feeble-minded patients who had mental upsets did not show clear-cut types of mental illness, but showed very diffuse complaints with hypochondriasis, depressions or exhaustion states with delirium and schizophrenic features (psychoses).

Compared with the patients of average intelligence, the feeble-minded came from decidedly less desirable families from both hereditary and environmental standpoints.

The relation of feeble-mindedness to eugenics

Having given the percentage of seriously defective and feeble-minded patients in the obstetrical dispensary group and noted what they have already shown in their relationships to the community, let us consider what authorities have to say on the subject of mental defect from an eugenic point of view.

Eugenists are concerned with bettering the race on the one hand by preventing the procreation of individuals with inherited defects or with the power to transmit deficiencies to their offspring, and on the other by encouraging the procreation of desirable individuals.

Inherited characteristics are those transmitted by the chromosomes of the fertilized ovum. According to the results of genealogical study, mental deficiency is likely to be hereditary. Since mental character-

istics depend upon genes, they are subject to the rules of inheritance. Defective genes are more commonly recessive and superior ones dominant. Superior individuals who carry a defective gene may produce a defective offspring when the defective genes from each parent unite, or similarly, defective parents may have a superior offspring. However, in the long run, superior individuals produce more superior than defective progeny and inferior individuals produce more defective than superior offspring. Marcuse (9) states that Reiter and Osthoff following examination of a special training school in Rostock reported that 67.7 per cent of the children had at least one feeble-minded parent, and 72.7 of these children had at least one feeble-minded sibling.

Superior individuals with a defective gene are called carriers of defect, *i.e.*, they themselves are not defective but are capable of transmitting a defect to later generations.[14] Fisher (11) has estimated that 11 per cent of the feeble-minded population of any generation come from the mating of the feeble-minded of the previous generations, but 89 per cent come from mating among the latent carrier group. Marcuse (12) states that feeble-minded people have twice as many children as the average family as a result of lack of restraint and judgment.

In addition to inherited tendencies, the effect of environment must be considered. Some people insist that heredity plays the whole rôle and others, particularly those of the Behavioristic school, declare that environment alone is responsible for the characteristics of the individual.

Jennings (13) states that

"it is as clear biologically that environment affects behavior as that constitution does; and biology furnishes no automatic method of determining the relative rôle of each." "Only familiarity with the conditions actually found in dependent or delinquent individuals or families, resting on a basis of acquaintance with genetics and with other springs of behavior, can yield a valuable judgment. . . . It cannot be doubted that on the whole less favorable gene combinations accompany the unfavorable environment conditions, that is, the dependent or delinquent groups contain, on the average, a larger number of genes that must be classed as at least relatively defective . . . as compared with the reservoir of more favorable genes in the self-supporting group."

[14] This is a particularly interesting problem since, according to Green (10), the most fertile marriages do not result when two feeble-minded mate, but when a feeble-minded and a normal individual do.

Experiments reported by Freeman (14) have shown that bettering the environment improves the Intelligence Quotient. Dr. Ruth Fairbank in a preliminary report on the development of subnormals found that environment had played an important rôle in stabilizing some individuals who in early years were diagnosed as retarded. However, although the individual treated is helped by the improved environment, he still transmits defective genes to his descendants.

The problem of eugenics becomes one of recognizing individuals carrying defective genes. The only fundamental means of control is to stop the propagation of such individuals. Jennings (15) has stated,

> "It is difficult to see how anyone could raise a doubt as to this. It is incredible that anyone should knowingly advocate continuing the operations of defective genes that produce such frightful results as idiocy or insanity. To stop the propagation of the feeble-minded, by thoroughly effective measures, is a procedure for the welfare of future generations that should be supported by all enlightened persons. Even though it may get rid of but a small proportion of the defective genes, every case saved is a gain, is worth while in itself."

Methods available for controlling the propagation of the unfit

Since over three-fourths of the patients examined asked for a solution of their problems and desired advice concerning the limitation of their families, the problem of preventing the propagation of the mentally unfit becomes one of practical as well as of eugenic significance. The methods at present available to prevent the propagation of the unfit are (1) birth control, (2) marriage bureaus, (3) segregation, (4) sterilization.

(*1*) ***Birth control.*** The present medically recommended means of birth control are inadequate, especially for those for whom it is most desired—the feeble-minded. This is strikingly brought out in our study which shows that the percentage of those who used birth control methods successfully was exceedingly low. This failure to use birth control advice successfully is due not so much to the inability of the patients to learn, but to their lack of the sense of responsibility necessary to follow directions with consistency and effectiveness.

(*2*) ***Marriage bureaus.*** A ***marriage bureau*** which required physical and mental examination of both parties before marriage, with a proper period of notification, would be of considerable service. It would not

however take care of the progeny from common law marriages or illegitimate pregnancies. In the group examined illegitimate pregnancies occurred more frequently among the patients of low intelligence.

Fetscher (16) reports that in Germany approximately 180 bureaus have been established for the purpose of giving advice before marriage. They have found that only 45 per cent came before marriage, and among those coming after marriage, 34 per cent had sexual difficulties and 20 per cent came with problems other than sexual. The difficulties were chiefly those of personality adjustments, social problems of unemployment, birth control advice, etc. The general feeling in the country has been to think of them as bureaus solely for contraceptive advice. Although they do give birth control advice, they wish them primarily to be known and used as sources of help before marriage for information and medical examinations. It is interesting that of the 45 per cent who came for information before marriage, 98 per cent admitted sexual relations.

(*3*) *Segregation.* Segregation means the isolation of feeble-minded patients in institutions for the protection of themselves and of society. One of the chief and common objections raised against this solution is the tremendous expense involved. According to Landman (17) a study by the Bureau of the Census of the United States Department of Commerce reports that at the present time about 90 per cent of all feeble-minded individuals in institutions for the feeble-minded are being cared for by the state. A small percentage of these patients after a period of habit training are discharged or paroled from the institution. Opinions and statistics vary as to the success of these individuals when removed from the guidance and protection of the institution; but even granting that all of them were successful on parole, the proportion who are ever deemed ready for discharge is small.

(*4*) *Sterilization.* Concerning sterilization there is also a diversity of opinion. Perhaps the commonest objection put forward is the fear that sterilization would lead to social license. Popenoe's (18) statistics for a group followed after sterilization, however, tend to disprove this fear. He states "As practised in California, parole of the feeble-minded after sterilization has not tended to increase the amount of promiscuity in the community or favored the spread of venereal diseases. On the contrary, it has helped greatly to reduce both."

The common objections put forward against sterilization by the individual patients are fear of the major operation, and particularly among the colored, fear that their "nature" would be taken from them. If factual evidence could be secured, regarding the effect if any on the libido with the present methods of sterilization, by excision of the Fallopian tubes, it would help to overcome the prejudices aroused by earlier methods of sterilization when the procedure was removal of the ovaries. It would be possible to secure the necessary data only if intelligent patients, who have been sterilized for reasons other than a mental condition, would coöperate in studying their emotional responses. It would be difficult to obtain the type of information desired from individuals of low intelligence. Popenoe (19) has reported concerning 108 psychopathic patients following salpingectomy that "there has been, in general, no interference with the normal sexual life of the patient. . . . It is surprising that a larger number of them do not report a diminution of libido, for reasons quite unconnected with the operation." These reports were given by patients not entirely well, but improved enough to leave the hospital.

The following reasons are given by others for approval of sterilization.

(1) It is the only effective and certain means of controlling the propagation of the mentally unfit.

(2) It entails much less expense to the state than does a plan for segregation.

The tremendous financial burden to the state becomes a very pertinent question when it is realized that according to a report (20) on hospital service in the United States in 1930 one out of every 290 persons in the United States was in an institution for the mentally diseased or feeble-minded and that 45.7 per cent of all hospital beds in the country are of this type. "If the present rate continues, and there is no apparent reason for thinking it will not, by 1934 we shall have more than one-half million persons in our nervous and mental hospitals." The estimated per patient cost, according to Pollack (21), for the year ending June 1928, for maintenance of New York State hospitals was as high as $404.82,—for the feeble-minded and epileptic in Massachusetts in 1930 (22) it was $365, and in Maryland for 1932 for the feeble-minded it was $209.66, the lowest it has been in years.

The state might be relieved of a burden of expense if the emotionally stable feeble-minded, now in institutions, were sterilized and paroled. A number of these individuals with some supervision are capable of caring for and partially supporting themselves in society if the danger of reproducing were removed.

In addition to saving the state expense by sterilization of the stable feeble-minded ready for parole from an institution, there is need for consideration of the therapeutic effect of sterilization on the individual herself. It does and can happen that a feeble-minded individual who has good habits, training, and some supervision, with one or even two pregnancies is or will be able to make a satisfactory social adjustment. However, if pregnancies are unchecked, under the strain of increasing responsibilities which she can not adequately meet, she becomes financially dependent, or delinquent, or develops mental disturbances. The beneficial effect of sterilizing such an individual before she has a burden larger than she can handle, may be very great.

Most authorities agree that there is need to prevent the propagation of the idiots and imbeciles (all under 8 years mentally)—although they may disagree as to whether this should be done by sterilization or segregation.

The medical profession, however, has a more difficult task in deciding concerning the much larger group of feeble-minded from 8 to 12 years mentally. There can be no set standard for determining when sterilization is indicated, since each case requires careful individual study. Intelligence, estimated from a psychological examination alone, should be by no means the only guide, but the emotional stability, habits, training and opportunity for some supervision of the individual are all equally important.

As Dr. Macfie Campbell (23) has written: "Intelligence is not the only condition which determines the ability of an individual to support himself . . . other factors are of great importance such as the emotional responsiveness, the stability of the individual . . . and his general output of energy." These factors can only be obtained by studying the life story of each patient, including his inheritance and past environment. It is only then that we have the right to decide what is best for the patient, her progeny and society.

Suggestive guides to be used if sterilization is under consideration

In suggesting some guides to be used in the decision of the problem of sterilization, the following information concerning the patient should be sought and considered—the age; race; parity; physical and mental health; emotional stability; habits; attitude toward and care given the children and home; intelligence; school and work records; the hereditary and environmental background with particular emphasis on mental defects or mental illnesses and their transmissibility; the economic situation; the use of contraceptives with or without success and the attitude toward the question of sterilization. Concerning the husband, similar facts should be studied, with stress on inheritance, physical and mental health, intelligence, stability, sense of responsibility and ability to support a family. Concerning the offspring, physical health, neurotic traits, intellectual endowment and nervous and mental stability should be investigated.

In short, a careful and intensive study is needed in order to determine whether from an hereditary and environmental standpoint the individual and her husband should be allowed to reproduce.

Some indications of the need for legislative measures

During the course of this survey several patients sent to the obstetrical department with a recommendation for sterilization refused the operation. The reasons given, as stated before, were usually fear of the operation or fear that their "nature" would be taken from them. Although agreeing to sterilization for their wives, the husbands emphatically refused the relatively simple operation on themselves.

This refusal on the part of some patients has raised the question of the need for legislation concerning this subject—to insure the protection of the patient, the physician, and the community. Without legislation we have the paradox of allowing very defective individuals, who are recognized as incapable of sound judgment, to decide on this most important question of what is best for themselves, and of more importance for the race. With proper legal measures the rights of the patient would be safe-guarded and over-enthusiastic advocates of sterilization would be curbed.

There is need also for the protection of the doctor, because sterilization of the female by the present methods is a major operation. The

responsibility for interference should never be borne by one physician. Written permission from a legal guardian and a statement from a medical consultant should be required in every case.

The solution Dr. A. Meyer (24) has suggested for the issue of who should have the right to decide whether a given marriage is good for the individuals and the community applies equally well to the problem of sterilization—"a free and sensible collaboration of the responsible parties . . . the good sense and good will of the community . . . and the help of the expert physician."

Only when the medical profession recognizes its responsibility in the continued education of the community concerning the eugenic, social and economic burden of feeble-mindedness will a solution be possible.

SUMMARY

1. Fifteen hundred patients in the obstetrical dispensary of the Johns Hopkins Hospital were personally interviewed, social information obtained, and Binet-Simon Intelligence Tests given in a study to determine the interrelations between feeble-mindedness and the welfare of the community.

2. The group examined was *representative* of the obstetrical dispensary group at the Johns Hopkins Hospital.

3. The *white* hospital population is probably distinctly inferior to the general white population of the city, while the colored hospital population is probably characteristic of the general colored population of the city.

4. The median mental age for the white patients was 12.3 years and for the colored patients 10.6. (The average mental age for white adults, as a result of army tests, was placed between 13 and 14 years and at 10 for the colored.)

5. Of the white patients 39 per cent and of the colored, when judged by white standards, 70 per cent were found to be feeble-minded with a mental age of 11 years or under. However, only one-third of the colored were feeble-minded when judged by their own standards of 10 years.

6. Two per cent of the white and nearly 7 per cent of the colored were very seriously defective, with a mental age under 8 years.

7. The mental age groupings resulting from the Intelligence Tests were strikingly supported by the findings on school and work records.

8. The burden of the feeble-minded on the community was shown by the fact that decidedly more of them than among those of average intelligence were dependent on social agencies for financial and other aid. The frequency of sex delinquencies, the incidences of venereal infections, mental instabilities, and unfavorable family backgrounds when heredity and environment are considered, occurred consistently more among the feeble-minded than among the more intelligent groups.

9. Information secured about the husbands indicated that there was greater stability, better physical and mental health, and more economic independence among the husbands of the more intelligent than among the less intelligent patients.

10. Information concerning the physical health and intellectual endowment of the children was available in relatively few cases.

11. Of the last 500 patients examined over two-thirds of the white and one-third of the colored admitted attempts at some means of birth control, but in all only 13 patients among the more intelligent used any method successfully. Coitus interruptus and condoms were the most common methods chosen by the white patients, and douches and condoms by the colored. Over three-fourths of the patients wanted advice about satisfactory methods of birth control.

12. There is need for effectual means of controlling the propagation of the mentally unfit including feeble-minded, psychotic and unstable mentally retarded individuals.

13. The present methods available are:

(a) *Birth Control:* medically recommended methods are ineffective for the unintelligent group of patients.

(b) *Marriage Bureaus* would be helpful if they insisted on physical and mental examinations before marriage. Such bureaus would not take care of illegitimate pregnancies which occur more among the mentally defective. Some persons believe that regulation of marriage is less humane than an operation for sterilization.

(c) *Segregation*, which is costly.

(d) *Sterilization*, which is effective and less expensive than satisfactory means of segregation. For a woman the present method of sterilization means a major operation.

14. Intelligence alone should not be the sole determinant in the decision of sterilization. This problem demands careful study of each individual from the standpoints of hereditary factors, intelligence, emotional stability, sense of responsibility, care given to offspring, and physical and mental health; intelligence and stability of husband and children; the economic and social status and the attitude of both parties toward birth control and sterilization.

15. Some patients for whom sterilization was recommended refused the operation. This refusal by patients who clearly from an eugenic and social standpoint should not reproduce raised the important issue of compulsory sterilization and the need for more effective means of birth control. Perhaps the present needs might be met best by permissive legislative measures which would safeguard the rights of the patient and by law protect the surgeon performing the operation. The written consent of the patient or legal guardian and statements from two consulting physicians should be required in every case.

16. The responsibility of the medical profession in educating the community concerning the eugenic, social, and economic burden of feeble-mindedness can not be too strongly emphasized.

17. There was need in the beginning to have such a survey in order to know the kind of material and the extent of the problem of feeble-mindedness among Obstetrical dispensary patients. But in future there is need for more intensive study of the individual case which is impossible when large numbers are examined. Such intensive work, if approached chiefly from the eugenic standpoint, should concern itself with a study of the previous offspring of the defective patients.

18. If sterilization can be conscientiously recommended, something more should be known concerning the effect on the patient following the operation. However, the indications for sterilization should be considered not only from the standpoint of the individual but more especially from an eugenic one.

The writer wishes to express her sincere appreciation for advice given by Dr. Esther L. Richards in the plan of the study. Grateful acknowledgment is made for the assistance of the social worker who collected data, to the members of the Obstetrical Staff for their fine spirit of cooperation, to Miss Spicer who aided in arranging interviews and to

Mrs. Blum who assisted with the tabulation of the material. Especial thanks are due Miss Bessie Stern, statistician of the State Department of Education of Maryland for invaluable suggestions and assistance concerning the statistical material, and to Dr. Alan M. Chesney for a critical review of this report.

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APPENDIX

THE JOHNS HOPKINS HOSPITAL

A EUGENIC SURVEY OF OBSTETRICAL PATIENTS

Social Service Exchange No. Registrations

Interview Date Place

Survey No.
Unit No.
Dispensary No.
Obstetrical No.
O. O. S. No.

History
Adeq. Inadeq. Unrel.

Duration of Pregnancy

HISTORY AND EXAMINATION OF PATIENT

Name Age W. B. Birthplace

Address S. M. W. D. Sep. Dss. Religion

Leg. Illeg. Quest. Birth Injuries No Yes Quest. Development Nor. Slow Quest.

Early Environment (foster home, institution)

PERSONAL DATA

Neurotic Traits

Enuresis
Tantrums
Dreams—Night Terrors
Timidity
Food Capriciousness
Tics—Nervousness
Spells
Nail Biting
Headache
Convulsions
Miscellaneous

Health Before and During Pregnancies (physical and mental illnesses, operations)

Vomiting Headaches Convulsions Nervousness
Fear of Pregnancy Difficult Labor Spells

Habits Alcohol Drugs

Court Record (delinquency)

SCHOOL RECORD

Age Entered Attainment Lit. Illit. Repeater

Age Left Attendance (reg. irreg.)

Reasons for Leaving

WORK RECORD

Age Started
Average Wage

Occupation (before or since marriage or during pregnancy, and reasons given for changes)

Sources of Income and Economic Situation (reasons)

LIVING AND HYGIENIC CONDITIONS

Home: Own Rent

Rooms: Rent Board

Sat. Unsat. Quest.

Move Frequently: No Yes

SEX HISTORY

Age at 1st Mar.
Age at 1st Preg.
Promiscuity (extramarital)

Pregnancy: Total No. / Legit. / Illeg. / When Married / By Husb. Before Marriage

Abortions: Spontaneous / Att. Interference / Criminal / Questionable

Children: No. Living * / No. Dead (causes)

Wanted Not Wanted Reason

Contraceptives: No Yes

Attitude Method Success

Sterilization: Desired / Opposed (reasons)

EXAMINATIONS

Physical and Neurological

Delivery Note

Behavior and Mental Status

Cooperation Good
Fair
Poor

Psychological Test Sat. Unsat. Not Given

Mental Age

Impression of General Capability

Contracep. or Sterilz. Indic. Refused

* CHILDREN

Name Age School Record Health (birth injuries—mental defect—malnutrition—tbc.—syphilis)

SIGNIFICANT FACTS IN FAMILY BACKGROUND

	Father	Mother	Father of Child
Name			
Address			
Age			
Religion			
Race			
Birthplace			
Legitimacy			
Marital Status			
Intelligence (Literacy and school record)			
Health Physical (tb, syph) Mental (defective)			
Habits Alcohol, etc. Court Record			
Capability and Attitude Toward Children			
Living and Hygienic Conditions			
Occupations, Wages (changes, reasons)			
Sources of Income			

Siblings	Living—Health	Dead—Causes
Leg.		
Illeg.		

Additional Data

Registration in Charitable and Social Agencies

OUTLINE FOR SOCIAL INFORMATION

1. Degree of dependence as indicated by material relief (Why given—Chronic or emergency relief—Amount—Duration)
2. Court record (social delinquency involved)
3. Familial disease (alcoholism, mental, epilepsy, tuberculosis)
4. Infection (syphilis, gonorrhea)
5. Legitimacy (in 3, 4, 5—information about blood relatives of the patient and of the husband's family is significant in considering the heritage of their offspring)
6. Standards of hygiene (personal and home)
7. General capability of patient and care of children (attitude of parents toward children important)

Note: In the eugenic survey we are anxious to obtain as complete a picture of the patient's background as is possible. Therefore, the above outline has been suggested as an aid in securing this information.

PIGMENT IN THE NAILS DURING HYPERTHYROIDISM[1]

HENRY M. THOMAS, JR., M.D.

An anomalous pigmentation of the finger-nails was noted in the case of a colored woman suffering from diffuse goiter with hyperthyroidism. As far as we have been able to learn, it is unique and for this reason is being reported with the accompanying photographs.

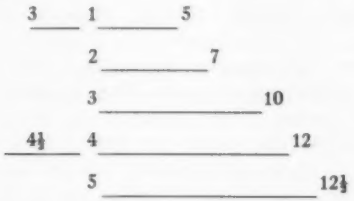
C. C. Aged 40 years. Female. Colored. Married. (Unit History No. 49,278.)

Admission note. (Dr. J. E. Howard. September 25, 1931.) A negro cook, 40 years old, comes to the hospital because of dyspnoea, palpitation of 4 months' duration and oedema of the ankles of one month's duration. Her general health has always been good. Her only pregnancy was 20 years ago and the child died at the age of one week. She has menstruated regularly until her last period, which was missed. She has had malaria and diphtheria as a child, and pneumonia in the Johns Hopkins Hospital in 1922. She had a *fistula in ano* treated in the Johns Hopkins Dispensary in 1923. She has always liked winter better than summer and perspires easily. Her weight was 145 pounds two years ago, 120 pounds one year ago and is now 98 pounds. Four months ago noticed nervousness, dyspnoea on exertion, anorexia and nausea and during the last few days diarrhoea. A month ago she noticed oedema of the ankles and orthopnea. The symptoms increased in intensity and she consulted a doctor one month ago. He made her stop work, go to bed for two weeks and take some drops for her heart. She improved markedly on this régime; her appetite returned, the oedema disappeared and has not recurred, and the dyspnoea is much less. She came to the Medical Dispensary four days ago and was sent immediately into the hospital with a diagnosis of Graves' disease. She has taken no iodin.

Physical examination. Temp. 99°F., P. 100, Resp. 20. A somewhat jumpy negress in no respiratory distress, lying flat. There is no cyanosis; no icterus; no petechiae. The skin is loose with evident loss of weight, slightly moist and sweaty, although the day is quite cool. There is no sinus nor mastoid tenderness. Watch-tick is heard fairly well in both ears, slightly better on the left side. There is prominent exophthalmos, equal on the two sides; the gaze is staring with wide lid-slits; the forehead wrinkles but little when she looks up. Convergence is defective. There is a definite lid-lag. The patient blinks her eyes normally. There are corneal opacities in both eyes. The right pupil is larger than the left, and the latter

[1] Submitted for publication November 4, 1932.

is oval, as a result of adhesions of the iris. There are slight opacities of both lenses. The fundi are normal. The tongue shows a fine tremor; no atrophy. The teeth are in rather poor condition; the pharynx is negative. There is no general glandular enlargement. There are a few small glands at the angles of the jaws. Both the isthmus and the lateral lobes of the thyroid gland are diffusely enlarged; there is a bruit over the whole gland but no thrill. The end of the thyroid gland in the suprasternal notch cannot be felt. There is a fine tremor of the extended fingers. The left chest seems to move less than the right and there is slight dullness above and below the left clavicle where the breath sounds are slightly harsh. Elsewhere the lungs are normal. There is a diffuse, wavy impulse all over the precordium; a shock of the second sound is felt best at the pulmonic area. Dullness (see diagram).



Sounds: A systolic murmur is heard at the apex and along the left sternal border, loudest and rather scratchy at the pulmonic area. The second pulmonic is markedly accentuated. The first sound is not as loud as the precordial impulse leads one to expect. The abdomen is soft. There is no tenderness. The edge of the liver is felt one fingerbreadth below the costal margin. The dullness extends as far up as the 5th rib. Traube's space is normal. The spleen and kidneys are not felt. A small rounded tumor is felt above the symphysis, the size of a golf ball, freely movable and hard. The deep reflexes are normal. No clonus. The Babinski test is normal. There is no oedema of the ankles or sacrum. There is no costovertebral tenderness. The joints are freely movable. Dorsales pedis arteries are palpable in both feet. Pulses are equal, regular, synchronous, with a rapid rise and fall. The peripheral vessels pulsate prominently. Normal venous pulsations are seen in the neck. The arteries are not notably thickened. Blood pressure 130/70.

Impression. Graves' disease of moderate severity. Cardiac symptoms were evidently prominent before the recent rest and digitalis medication which seem to have brought about marked improvement. From the wide parasternal dullness I am inclined to believe that the diffuse enlargement of the thyroid gland extends below the sternum. The dullness in the second interspace to the left is probably due to a dilated conus. The myocardium seems to be of poor tone and I believe digitalis will probably be of benefit, although iodine may markedly diminish the cardiac shadow simply by decreasing the load. There is an old keratitis with early

opacities of the lenses. Myoma of uterus. The signs beneath the left clavicle may be due to compression or to old pulmonary or pleural changes.

September 25, 1931. Wassermann reaction: Negative.

Blood counts: R.B.C., 4,190,000. W.B.C., 7,760. Hbg., 73 per cent.

Urine: Amber, clear; sp. gr. 1020; reaction acid; sugar 0; albumin 0; sediment 0; Micro: Occasional w.b.c.; no r.b.c. nor casts.

Basal metabolic rate plus 63 per cent. Pulse 108.

X-ray report. September 26, 1931. Chest: Heart very much enlarged; aorta dilated; mediastinal shadow extends up to neck probably due to substernal thyroid; secondary changes in the lungs.

Tele: M. R. 4.9. M.L. 10.8? T. 22.

Electrocardiogram. September 30, 1931. Rate 100. Rhythm sino-auricular. P-R interval .16. QRS duration normal.

The patient remained in the hospital 7½ months. Her course there is shown by the graphic chart. She presented a most difficult clinical prob'em in that she developed auricular flutter sometime between the first electrocardiogram on September 30th, which showed a normal sinus rhythm, and the second electrocardiogram on October 19th, which showed an auricular rate of 300, ventricular rate of 120, with ventricular response to every second and occasionally to every third impulse of the auricle. During her stay in the hospital there were 18 electrocardiograms taken, all of which, after the first one, showed the condition of auricular flutter to be present.

Although she gained weight and the basal metabolic rate fell to within normal limits, two attempts at operation were interrupted by ventricular tachycardia with circulatory collapse.

When it appeared that her condition was so serious that she could not safely undergo an operation, she was given two treatments with radium by Dr. Curtis F. Burnam. Although the radium exposure was strong enough to produce a skin burn, there was no evident reduction in the hyperthyroidism, and the basal metabolic rate rose steadily. The second administration of iodine, about 3 months later, was accompanied by a prompt fall in the basal metabolic rate.

Finally it was decided that the patient must be operated on in spite of the cardiac condition, as it was thought that her life depended on a successful cure of the hyperthyroidism. Following operation there was a typical thyroid storm which the patient seemed to be weathering when she suddenly died.

Post-mortem examination (Autopsy 13581) revealed a patent foramen ovale which, in the presence of definite emphysema, may have been partly responsible for the unusually severe cardiac manifestations of hyperthyroidism in this case. The possibility of the existence of a congenital heart lesion had been seriously considered by Dr. Warfield T. Longcope when, on one occasion, he heard a continuous murmur in the second interspace.

When called in consultation to examine the patient on account of my interest in cases of so-called thyroid heart disease, I noticed an interest-

ing band of pigment across the middle of each finger-nail. Photograph 1 shows fairly well what this looked like. I have been unable to find any similar condition described in the literature and am at a loss to explain its occurrence in this case. Photograph 2 was taken six weeks after the first picture and shows roughly the rate of growth of the finger-nails. From this rate of growth I have calculated that the pigment must have been laid down in the nail bed at the time when the patient received the exposures of radium to the thyroid gland.

PHOTOGRAPH 1. TRANSVERSE BANDS OF PIGMENT OF THE FINGER-NAILS
FEBRUARY 26, 1932

Since my attention has been called to pigment in the finger-nails, I have noticed a number of colored people whose nails show longitudinal bands of pigment running the length of the nail. The patient usually explains such lines by saying that the bed of the nail had been pierced by a splinter.

Samuel Monash (1) has recently (May, 1932) published an article giving the result of his examination of the finger-nails of 296 negroes. He reported pigmented longitudinal stripes of the nails in negroes to

be a very common occurrence. He found these pigment stripes more often in negroes who had a very dark shade of skin pigment. Microscopically, the pigment granules are scattered through the entire thickness of the nail substance with a tendency for the deeper layers to be more pigmented than the superficial. They take the form of the nail cells and undoubtedly owe their color to the presence of melanin.

When the pigment stripes of the case here reported grew out to the end they were cut off and examined microscopically, with findings similar to those reported by Monash.

PHOTOGRAPH 2. TRANSVERSE BAND OF PIGMENT. APRIL 11, 1932

At the October, 1913, meeting of the Manhattan Dermatological Society, Dr. Ochs (2) showed "an adult negress, who presented a peculiar pigmentation of the nails of both hands. Each nail had from one to four parallel horizontal stripes, extending from the matrix to the end of the nails. The lines of pigmentation were sharply defined and were of varying thickness, from one-eighth to three-eighths of an inch, and had existed since birth."

Montgomery (3), in 1917, and Templeton (4), 9 years later, each re-

ported one case which showed a longitudinal pigmented stripe in one finger-nail (Photograph 3). They thought that this condition was

Fig. 1.—Montgomery's case of pigmented stripe in the thumb-nail.

Fig. 2.—Hand in author's case.

PHOTOGRAPH 3. REPRINT FROM MONTGOMERY'S ARTICLE

extremely rare. Monash's study clearly shows that this was an error resulting from the fact that no one had examined finger-nails in a large number of negro patients.

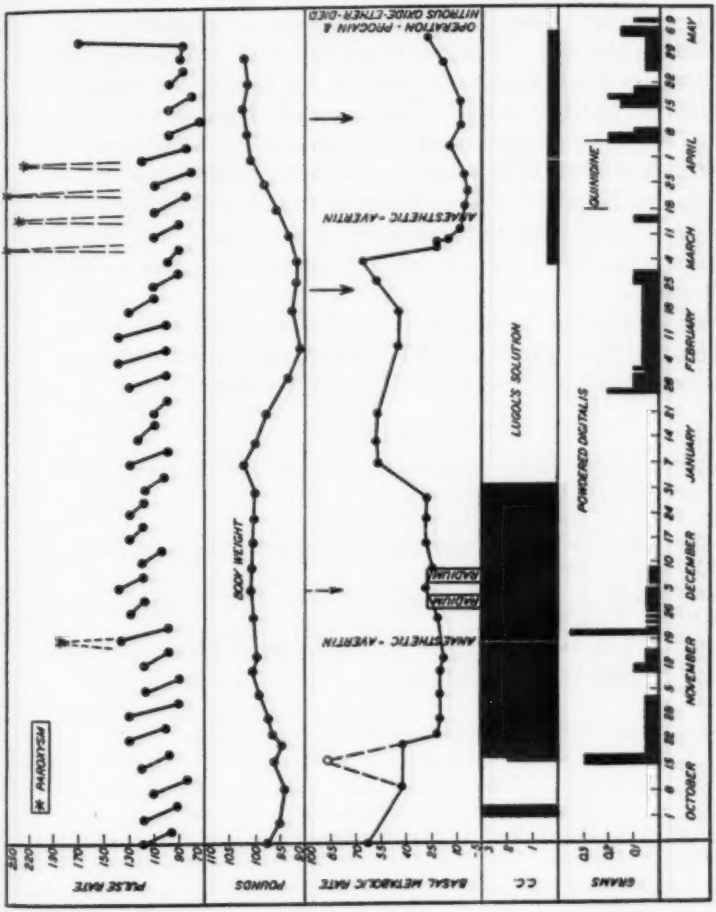


CHART 1. This chart is designed to indicate the important events during the patients' course in the hospital. The arrows show the times when the two photographs of the finger-nails were taken and the broken-line arrow indicates the time when the bands of pigment must have been laid down in the beds of the nails. It will be seen that this coincides with the time of the exposures of the thyroid gland to radium.

Transverse stripes of pigment have never been described before. Obviously very rare, they may have been overlooked, especially as the nail becomes normal again in the course of 3 to 5 months. There is no adequate explanation for the sudden deposition of pigment in the finger-nails in this case. It seems to me extremely interesting that this deposition should have taken place at the time of the exposure of the thyroid gland to radium. Pigmentation of the finger-nails is known to occur in Addison's disease (Rountree (5)). Whether radiation of the thyroid gland in a negro patient with exophthalmic goiter can cause a mobilization of pigment similar to that seen in Addison's disease must remain, for the time being, a pure conjecture. Post-mortem examination of the suprarenal gland structure gave no hint as to the cause.

It seems likely that further search will reveal similar phenomena, particularly in those clinics in which radium and deep x-ray therapy are commonly used in the treatment of hyperthyroidism.

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BOOK REVIEWS

Handbuch der Chemotherapie. By FISCHL and SCHLOSSBERGER. (*Fischer's Medizinische Buchhandlung, Leipzig, 1932.*)

Part I. Non-metallic Organic Compounds. This is the first part of a three-volume treatise which is intended to cover the field of chemotherapy in a comprehensive manner. A work of this kind is particularly welcome at the present time, and will supply a definite deficiency which has existed in the literature of medicine in general, and particularly in pharmacology and therapeutics.

In the preface the authors correctly state that as yet we have no comprehensive presentation of chemotherapy which links it up with the many branches of science and medicine. They hope by this work to supply such a deficiency, and it is their purpose to present the subject matter from a broad point of view.

In the beginning of the first volume we find an extensive reference list of text-books and monographs dealing with the chemistry and chemotherapy of the substances to be discussed. Thereafter are treated with varying degrees of detail a large number of compounds under the following chapter heads: alkyl chlorine compounds; unsaturated fatty acids; simple benzene and naphthaline derivatives, hydroxy- and oxo-compounds; amino acids, quinoline related compounds; quinine and its derivatives; emetin and its derivatives; miscellaneous plant products; acridine derivatives; miscellaneous dye-stuffs; colorless urea derivatives (germanin), human serum, and serum of apes. At the end of each section is given a fairly complete list of references. Until the work is completed, readers will have to use the table of contents to find a particular substance. It is hoped that the authors will supply a complete index for the work.

Part II of the treatise will be devoted to a discussion of arsenic, antimony, bismuth, iodine, gold, mercury and lead.

Part III should prove particularly valuable in that it will contain an extensive discussion of the various theories of the chemotherapy and the mode of action of the compounds as generally conceived, and lastly a chapter dealing with the present status of research in chemotherapy.

This book certainly should prove to be a most welcome addition to the literature of pharmacology and therapeutics. No doubt there will be some difference of opinion among users as to its value, but it should be remembered that a certain amount of selectivity is inevitable in discussing so many and varied groups of substances. Nevertheless, the brevity of the text in a number of instances can be adequately supplemented by the extensive reference material which, after all, is what the investigator most desires.

E. M. K. G.

Sixty Centuries of Health & Physik. [With an Introduction by Sir Humphrey Rolleston, Bart.] By S. G. BLAXLAND STUBBS AND E. W. BLIGH. 1931. 253 Pp. $5.00. (*Paul B. Hoeber, Inc., N. Y.*)

A pleasant potpourri of information which one can read and ruminate upon at odd hours of the day without any intense degree of concentration.

M. P.

Fungous Diseases. A Clinico-Mycological Test. By HARRY P. JACOBSON, M.D. 1932. Illustrated. 317 Pp. $5.50. (*Chas. C. Thomas, Springfield, Ill.*)

In this treatise of some 300 pages, including a voluminous bibliography the author discusses the various pathogenic fungi from a clinical standpoint. The organisms are considered in connection with the diseases caused by them, and classified into effective categories.

The cultural and microscopic appearances of disease-producing fungi are considered, as also mycological technique. Excellent photographs accompanying the test will prove helpful for orientation. Valuable features are discussed, as the specific cutaneous reactions and autogenous vaccines in pulmonary moniliasis, vaccine therapy, and the use of filtrates of the organisms in blastomycosis; particularly Coccidioidin (exotoxin and endotoxin) in Coccidioidal Granuloma.

The chapter on Coccidioides affords a thorough and comprehensive discussion of the "California Disease," on which the author is an authority. He outlines his treatment with colloidal copper, coccidioidin and roentgenography.

As the first comprehensive treatise on clinical-mycology, this book meets its object.

J. H. L., JR.